

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Application of)
)
KAUAI ISLAND UTILITY COOPERATIVE)
)
For Approval of Power Purchase Agreement)
with AES West Kauai Energy Project, LLC)
and to Include Costs in Kauai Island Utility)
Cooperative's Energy Rate Adjustment)
Clause, and other Matters Related to the)
West Kauai Energy Project.)

DOCKET NO. 2020-0218

DIVISION OF CONSUMER ADVOCACY'S
MOTION TO SEAL THE DIVISION OF CONSUMER ADVOCACY'S
STATEMENT OF POSITION, FILED JULY 2, 2021

DECLARATION OF SCOTT BOONE

EXHIBITS "A" AND "B"

AND

CERTIFICATE OF SERVICE

SCOTT D. BOONE
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Pursuant to the Hawaii Public Utilities Commission's ("Commission") Rules of Practice and Procedure, Hawaii Administrative Rules ("HAR") § 16-601-41, the Division of Consumer Advocacy ("Consumer Advocate") respectfully moves the Commission to seal, as confidential, the Division of Consumer Advocacy's Statement of Position, filed on July 2, 2021, and replace that filing with the attached Exhibits "A" and "B" ("Motion to Seal").

On July 2, 2021, on page 13 of its Statement of Position, the Consumer Advocate inadvertently provided reference to the specific security amount required under Section 13.4 of the Power Purchase Agreement ("PPA") between Kauai Island Utility Cooperative ("KIUC" or the "Company") and AES West Kauai Energy Project, LLC ("AES"). The PPA was attached as Exhibit "1" to the application in the above captioned docket and the specific security amount under Section 13.4 was identified as CONFIDENTIAL.

The Consumer Advocate intended that this confidential information remain confidential, subject to the terms of the Protective Order No. 37605, filed on February 4, 2021, however, the public version of the Statement of Position, filed on July 2, 2021, inadvertently incorporated this non-public information in an un-redacted format

A complete and properly redacted public version of the Consumer Advocate's Statement of Position is attached to this Motion to Seal as Exhibit "A." A complete and un-redacted confidential, non-public version of the Consumer Advocate's Statement of Position is also attached to this Motion to Seal as Exhibit "B" and provided under seal. Through this Motion and these exhibits, the Consumer Advocate respectfully requests that the Commission allow these exhibits to replace the Statement of Position, originally filed by the Consumer Advocate on July 2, 2021, in its entirety.

The Consumer Advocate apologizes for any inconvenience to the Commission and other parties and participants and respectfully requests that the Commission grant the Consumer Advocate's Motion to Seal.

DATED: Honolulu, Hawaii, July 6, 2021.

Respectfully submitted,

By /s/ Scott D. Boone
SCOTT D. BOONE
LANE H. TSUCHIYAMA
EDWARD M. KNOX
JULIA H. VERBRUGGE
Attorneys

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DECLARATION OF SCOTT D. BOONE

1. I, Scott Boone, am the Supervising Attorney for the Division of Consumer Advocacy ("Consumer Advocate"). I make this declaration based upon my own personal knowledge and upon information and belief gained in that capacity, and in support of the accompanying motion.
2. My business address is 335 Merchant Street, Room 326, Honolulu, Hawaii 96813.
3. On July 2, 2021, on page 13 of its Statement of Position, the Consumer Advocate inadvertently provided reference to the specific security amount required under Section 13.4 of the Power Purchase Agreement ("PPA") between Kauai Island Utility Cooperative ("KIUC" or the "Company") and AES West Kauai Energy Project, LLC ("AES"). The PPA was attached as Exhibit "1" to the application in the above captioned docket and the specific security amount under Section 13.4 was identified as CONFIDENTIAL.

4. The Consumer Advocate had no intentions to disclose this confidential information in contravention to the terms of the Protective Order No. 37605, filed on February 4, 2021. However, the Consumer Advocate's Statement of Position inadvertently incorporated reference to this non-public information in an un-redacted format.

I declare, under penalty of perjury, that the foregoing is true and correct.

DATED: Honolulu, Hawaii, July 6, 2021.

/s/ Scott D. Boone

SCOTT D. BOONE

EXHIBIT A

DIVISION OF CONSUMER ADVOCACY
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DIVISION OF CONSUMER ADVOCACY'S
STATEMENT OF POSITION

Pursuant to the Hawaii Public Utilities Commission's ("Commission") Order No. 37733 Adopting Statement of Issues and Procedural Schedule, issued on April 15, 2021, ("Order No. 37733"), the Division of Consumer Advocacy ("Consumer Advocate") informs the Commission that it has completed its review of the application and information in the record at this time. Based upon that review, the Consumer Advocate recommends that the Commission, assuming that the recommended conditions in Sections II and III are adopted:

1. Approve, pursuant to Hawaii Revised Statutes (“HRS”) § 269-27.2, the Power Purchase Agreement (“PPA”) between Kauai Island Utility Cooperative (“KIUC” or the “Company”) and AES West Kauai Energy Project, LLC (“AES”);
2. Find that the energy charges, capacity charges, and other payments to be made by KIUC under the PPA are just and reasonable;
3. Find that the purchased power arrangements (e.g. terms and conditions) under the PPA are prudent and in the public interest;
4. Authorize, pursuant to HAR § 6-60-6(2), the inclusion of the costs (including applicable taxes and assessments) to be incurred by KIUC under the PPA in KIUC’s Energy Recovery Adjustment Clause (“ERAC”), to the extent that such costs are not recovered in KIUC’s base rates, except for any costs related to curtailed energy;
5. Approve, pursuant to Section 2.3.g.2 of the Commission’s General Order No. 7, the commitment and expenditure of funds for the New Overhead Circuit and Conductor Work so that all electrical output from the West Kauai Energy Project can be delivered to KIUC’s system and in a dispatchable manner through the existing 57.1 kV transmission line;
6. Determine, pursuant to HRS § 269-27.6, that the New Overhead Circuit should be placed, constructed, erected, and built above the surface of the ground; and
7. To the extent the Commission determines that its approval under HRS § 269-19 or otherwise is required, approve that KIUC (a) transfer the

Development Assets pertaining to the West Kauai Energy Project, and (b) convey, sublet, sublicense, assign or otherwise transfer, in whole or in part, any rights that KIUC may have with respect to the West Kauai Energy Project under any lease, license, contract, easement, right of entry, permit, authorization and/or other agreement or document, including without limitation the Project Subleases and Subeasement(s), to AES in furtherance of AES's efforts toward the development and construction of the West Kauai Energy Project, under the terms set forth in the Development Agreement.

The bases for the Consumer Advocate's recommendation is discussed below.

I. BACKGROUND.

A. PROCEDURAL BACKGROUND.

On December 31, 2020, KIUC filed its application in the instant docket requesting the Commission issue a decision and order, by no later than August 31, 2021, to the extent possible.¹

On January 15, 2021, KIUC filed the Interconnection Agreement entered into with AES.

On January 20, 2021, the Consumer Advocate filed its Preliminary Statement of Position. On the same day, the Hawaii State Energy Office ("HSEO") and Pō'ai Wai

¹ KIUC's Application for Approval of Power Purchase Agreement with AES West Kauai Energy Project, LLC and to Include Costs in Kauai Island Utility Cooperative's Energy Rate Adjustment Clause, and Other Matters Related to West Kauai Energy Project in Docket No. 2020-0218 ("Application"). As discussed below, KIUC subsequently modified its request to request that the Commission issue a decision and order by September 30, 2021.

Ola/West Kaua'i Watershed Alliance ("Po'ai Wai Ola") both filed their motions to intervene, respectively.

On March 22, 2021, the Commission issued Order No. 37691 (1) Denying the Hawaii State Energy Office's Motion to Intervene; (2) Denying Po'ai Wai Ola/West Kauai Watershed Alliance's Motion to Intervene; (3) Dismissing Po'ai Wai Ola/West Kauai Watershed Alliance's Motion for Leave to File Reply Brief; (4) Granting Participant Status to the Hawaii State Energy Office and to Po'ai Wai Ola/West Kauai Watershed Alliance; and (5) Instructing the Parties to Submit a Proposed Procedural Order.

On April 7, KIUC and the Consumer Advocate filed a Stipulated Procedural Order. In the Stipulated Procedural Order, KIUC requested that the Commission issue a decision and order by September 30, 2021, to the extent possible. On April 15, 2021, the Commission issued Order No. 37733 Adopting Statement of Issues and Procedural Schedule.

On April 28, 2021, the Consumer Advocate filed its First Submission of Information Requests ("IRs") on KIUC. On May 7, 2021, Po'ai Wai Ola filed its First Submission of IRs on KIUC. On May 12, 2021, KIUC responded to the Consumer Advocate's First Submission of IRs. KIUC responded to Po'ai Wai Ola's First Submission of IRs on May 21, 2021.

On May 13, 2021, the Commission issued IRs on KIUC. On May 21, 2021, the Consumer Advocate and Po'ai Wai Ola both issued its Second Submission of IRs on KIUC.

On May 27, 2021, KIUC responded to the Commission's IRs. On June 4, 2021, KIUC responded to the Consumer Advocate's and Po'ai Wai Ola's Second Submission of IRs.

B. SELLER/DEVELOPER BACKGROUND.

AES is a wholly owned subsidiary of The AES Corporation ("AES Corporation").² AES Corporation is a Fortune 500, publicly traded holding company, which, through its subsidiaries and affiliates, operates on four continents and provides energy to fourteen countries through a portfolio of thermal and renewable generation facilities and distribution businesses. Based on the response to CA/KIUC-IR-27, AES Corporation owns and manages \$34 billion in total assets and had revenues of \$9.7 billion in 2020.

With respect to AES Corporation's renewable energy development business, AES Clean Energy has teams in solar, wind, and energy storage and employs 500 people, has 3 GW of operational projects, and 2.6 GW of projects in the construction pipeline. In addition, AES has developed and operates many large-scale hydroelectric projects throughout the world, including 6.4 GW of hydroelectric capacity in Central and South America.³ In Hawaii, aside from operating coal plant at Campbell Industrial Park for nearly thirty years, AES is involved in a number of renewable energy projects, totaling over 200 MW either in operation or in various stages of development. This includes two solar and energy storage projects on Kauai—AES Lawai and AES Kekaha (Docket

² AES West Kauai Energy Project, LLC is 100% owned by AES Distributed Energy, Inc. AES Distributed Energy, Inc. is 100% owned by AES US Distributed Solar Holdings, LLC, which is in turn 100% owned by AES Corporation. Application, at 2.

³ Response to CA/KIUC-IR-27.

No. 2017 0443)—which together consists of 47 MW of solar plus 170 MWh of battery storage.⁴ In addition, three solar plus energy storage projects—AES Kuihelani on Maui (Docket No. 2018-0436), AES Waikoloa on Hawaii Island (Docket No. 2018-0430), and AES West Oahu Solar on Oahu (Docket No. 2019-0050)—received PUC approval as part of the Stage 1 projects procured in Docket No. 2017-0352. As part of the Stage 2 projects approved, Waiawa Phase 2 Solar (Docket No. 2020-0137) and Mountain View Solar (Docket No. 2020-0139) on Oahu are being developed by wholly owned subsidiaries of AES Corporation.

C. PROJECT OVERVIEW.

The West Kauai Energy Project (“WKEP” or “Project”) is a solar-powered pumped hydro storage project on the island of Kauai. The Project is designed to: 1) produce renewable energy through hydropower electric generation; 2) produce renewable energy through solar photovoltaic (“PV”) generation; 3) shift most of the Project’s solar PV energy production for consumption during the evening peak, nighttime, and morning peak (in addition to periods of cloudy/rainy weather) through the controlled release of water and hydropower electricity generation; 4) deliver irrigation to support diversified agriculture on adjacent lands managed by Department of Hawaiian Home Lands (“DHHL”), Agribusiness Development Corporation (“ADC”), and Kekaha Agricultural Association (“KAA”); and 5) rehabilitate the existing Puu Opae, Puu Lua, and Mana Reservoirs and related ditch infrastructure to alleviate the rehabilitation and maintenance responsibilities

⁴ See, for example, response to CA-KIUC-IR-27.

on State agencies and to increase public access and recreational opportunities associated with the Puu Lua Reservoir.⁵

Located on State-owned lands, the Project's facilities include two hydropower electric generation facilities ("Puu Opae Powerhouse" and "Mana Powerhouse"), a pumping station ("Mana Pumphouse"), a solar PV plus battery energy storage system ("PV/BESS Facility"), a 69 kV substation ("WKEP Substation"), and New Overhead Circuit and Conductor Work.⁶ The Project will use the existing Kokee Ditch Irrigation System ("Kokee Ditch") and the Puu Lua, Puu Opae, and Mana Reservoirs. The Project consists of two main segments – an upper segment, which is a traditional run-of-river hydroelectric project, and a lower segment, which is comprised of the PV/BESS Facility and pumped storage hydro ("PSH").⁷

In the traditional hydroelectric portion ("Hydropower-only"), water flowing downhill along the Kokee Ditch will be delivered and stored at the Puu Lua Reservoir for irrigation purposes (to the ADC Mauka lands) and hydropower electricity generation (at the 4 MW Puu Opae Powerhouse, which is estimated to produce 13 GWh annually).⁸ The water will then be delivered to the Puu Opae Reservoir, where the same water will be used for a second time for electricity generation at the 20 MW Mana Powerhouse, amounting to an additional 13 GWh annually.⁹ The Puu Lua Reservoir will hold enough water to fully

⁵ Application, at 5-6.

⁶ Application, at 6-7.

⁷ Application, at 7.

⁸ Application, at 7-9.

⁹ Application, at 8-9.

power the Puu Opae Powerhouse for about 166 hours, and through its second use, to fully power the Mana Powerhouse for approximately 33 hours.¹⁰

The PV/BESS Facility consists of a 35 MW alternating current (“MWac”) / 56 MW direct current (“MWdc”) PV array with a 35 MWac / 70 MWh BESS.¹¹ The PV array is estimated to generate an average of 115.7 GWh annually; about 36 GWh (31%) will be sent directly to the grid, about 55 GWh (48%) will be used to pump water uphill through the new 35 MW Mana Pumphouse, and about 24 GWh (21%) will be sent to the BESS.¹² A new WKEP Substation will carry the energy directly to KIUC’s grid or to the Mana Pumphouse that will pump water uphill to the Puu Opae Reservoir.¹³ Together, the water delivered from the upper segment and the water pumped uphill to the Puu Opae Reservoir will be used by the 20 MW hydropower turbine generator at the Mana Powerhouse for electricity generation primarily during the evening peak, nighttime, and morning peak hours but also during periods of cloudy/rainy weather.¹⁴ The Puu Reservoir will be capable of holding enough water to fully power the Mana Powerhouse for roughly 12 hours.¹⁵ Altogether, the Mana Powerhouse is estimated to produce 47 GWh of energy

¹⁰ Application, at 9. To generate at its full power rating of 4 MW, the Puu Opae Powerhouse will require roughly 40 cubic feet per second (“cfs”) of water delivered via the Upper Penstock. Over 166 hours, 40 cfs amounts to 179 million gallons (“MG”) of water. See Response to CA/KIUC--IR-6b.

¹¹ Application, at 10-12.

¹² Application, at 10-11.

¹³ Application, at 10-11.

¹⁴ Application, at 11-12.

¹⁵ Application, at 12. To generate at its full power rating of 20 MW, the Mana Powerhouse requires approximately 200 cfs of water flow from the Puu Opae Reservoir through the Lower Penstock. Over 12 hours, 200 cfs equates to 64.6 MG of water. See Response to CA/KIUC-IR-7a.

annually (34 GWh from the water pumped uphill and 13 GWh from the run-of-river hydropower from the upper segment).¹⁶

D. TERMS AND CONDITIONS OF THE PPA.

Some of the salient terms and conditions of the proposed PPA are as follows:

- Term: As set forth in Section 2.1 of the PPA, the term of the subject PPA begins on the Effective Date and ends fifty years after the Hydropower-only commercial operation date (“COD”). With respect to each component of the Facility the terms are: twenty-five (25) years for the PV/BESS Facility (“Solar Term”); forty (40) years for PSH portion (“PSH Term”); and fifty (50) years for the Hydropower-only portion (“Hydropower-only Term”).¹⁷
- Energy Rate: Section 3.2.2(b) of the PPA specifies that the contract price for energy (“Solar Price”) is \$71.60 per MWh of Net Solar and BESS Output as metered at each of the PV System and BESS Revenue Metering Points during each calendar month.¹⁸ In the event the full value of the State of Hawaii Refundable Tax Credit is not available, the energy contract price

¹⁶ Application, at 12.

¹⁷ In the event the Hydropower-only commercial operation date occurs after the Outside Hydropower-only COD, the hydropower-only term will be reduced to forty (40) years from the PV/BESS/PSH COD. Both the Solar Term and PSH Term commence on the PV/BESS/PSH commercial operations date, while the Hydropower-only Term commences on the Hydropower-only COD. Application, Exhibit 1, at 2-3. The full description of the Facility is contained in Appendix B to the PPA.

¹⁸ Application, Exhibit 1, at 8.

("Revised Solar Price") is \$81.00 per MWh of Net Solar and BESS Output.¹⁹

As detailed in Appendix F, payment by KIUC is on a "must take" basis.²⁰

- Test Energy: Section 3.2.1 of the PPA states that for each MWh of Test Energy produced in connection with commissioning and testing the PV/BESS/PSH and Hydropower-only components and delivered at the Point of Delivery, KIUC is to pay AES 50% of the per MWh Solar Price or Revised Solar Price during the period between the Effective Date and the PV/BESS/PSH COD for the PV/BESS/PSH component, and the Effective Date and the Hydropower-only COD for the Hydropower-only component.²¹
- Capacity Charges: As set forth in Appendix F of the PPA, the PSH capacity charge is fixed at a rate of \$538,649.25 per month ("PSH Monthly Capacity Charge"), equivalent to \$6,463,791.00 per Contract Year ("PSH Annual Charges"). A Hydropower-only capacity charge is fixed at a rate of \$205,005.75 per month ("Hydropower-only Monthly Capacity Charge"), totaling \$2,460,069.00 per Contract Year ("Hydropower-only Annual Charges"). For each component, if the rolling Equivalent Availability Factor falls below 97.5%, the capacity charge will be adjusted on a pro-rated basis.²²

¹⁹ If the State of Hawaii Refundable Tax Credit were ever reduced in half from \$350,000 per MWdc to \$175,000 per MWdc, the energy rate would be amended to \$76.30 per MWh. See Response to CA/KIUC-IR-13b.

²⁰ Application, Exhibit 1, at 66.

²¹ Application, Exhibit 1, at 8.

²² Application, Exhibit 1, at 66-68.

- Project Dispatch: As detailed in Sections 6.3 and 6.4 of the PPA, KIUC will have the sole right to schedule and dispatch the Facility (except with respect to producing Test Energy) at its discretion, but in all cases in compliance with the Operating Restrictions on the BESS and PSH set forth in Appendix G of the PPA.²³
- BESS and PSH Charging Requirements for the Federal Investment Tax (“ITC”) Purposes: As set forth in Appendix G of the PPA, during the first five (5) years of the Term, the BESS should not be charged from KIUC’s system and the pumps should not be powered using any energy from KIUC’s system. After the fifth (5th) year of the Term, KIUC shall have the option, at its reasonable discretion to charge the BESS and power the pumps with energy from KIUC’s system.²⁴
- BESS Capacity Obligations: AES will be required to comply with each of the BESS Capacity Obligations as set forth in Appendix D of the PPA.²⁵
- Curtailment: As set forth in Section 6.8 of the PPA, KIUC is obligated to pay AES monthly at the Solar Price/Revised Solar Price for each MWh of curtailed energy from the PV/BESS Facility that occurs during any period of reduced Facility Storage Capacity caused by KIUC, including dispatch that results in BESS reaching 100% state of charge (“SOC”), lack of sufficient water in the Mana Reservoir available to be pumped, or the water level in

²³ Application, Exhibit 1, at 13.

²⁴ Application, Exhibit 1, at 69.

²⁵ Application, Exhibit 1, at 54.

the Puu Opae Reservoir is such that the addition of water would exceed the Puu Opae Reservoir capacity. KIUC will not be obligated to pay AES for curtailment of delivery to KIUC's system to the extent such curtailment is implemented by KIUC pursuant to its rights as the "Transmission Provider" under the Interconnection Agreement to curtail interconnection of the PV/BESS Facility to maintain the safety and reliability of the KIUC's system.²⁶

- Costs of Ownership and Operation: As set forth in Section 5.1. of the PPA, AES is responsible for a) all costs and expenses associated with the interconnection of the Facility, up to and at the Point of Delivery in accordance with the separately executed Interconnection Agreement²⁷ and b) all costs of developing, constructing, owning and operating the Facility. KIUC is responsible for all cost and charges imposed in connection with the delivery and receipt of Net Output from the Point of Delivery.²⁸
- Indemnification, Insurance, and Performance Assurance: Section 12.1 of the PPA sets forth mutual indemnification provisions in which KIUC and AES shall defend, indemnify, and hold harmless the other party, its affiliates, directors, officers, shareholders, partners, members, agents, and employees, from and against all loss, damage, expense liability, and other

²⁶ Application, Exhibit 1, at 15-16.

²⁷ See Kauai Island Utility Cooperative Interconnection Agreement with AES West Kauai Energy Project, LLC, filed on January 15, 2021.

²⁸ Application, Exhibit 1, at 11.

**Confidential Information
Deleted Pursuant To
Protective Order No. 37605**

claims resulting from actions by AES or its contractors, agents, or employees relating to, arising out of, or in any way connected with, the PPA or Interconnection Agreement. Section 13.1 of the PPA requires AES to secure and continuously carry at its expense, certain insurance coverage, as specified in Appendix H of the PPA. Section 13.2 of the PPA requires AES to provide KIUC with certificates of insurance and any applicable required endorsements upon KIUC's request. Section 13.4 of the PPA requires AES to provide KIUC with security in the amount of [REDACTED] [REDACTED] to secure and assure AES' performance of all of its obligations prior to the Facility reaching Commercial Operation.²⁹

II. DISCUSSION.

As noted above, KIUC states that the proposed Project will provide firm, dispatchable renewable energy, which is intended to be primarily delivered to the grid mainly during the evening peak, nighttime, and morning peak hours as well as during periods of cloud cover and rain. KIUC further notes that while the Puu Opae Reservoir in combination with the Mana Powerhouse will function as an energy storage resource similar to a BESS, they offer several advantages as compared to a BESS in terms of the duration of storage capability, which is further increased by the ability to capture additional water from the upper segment of the Project, and the use of a rotating, synchronous generator to create AC power instead of using inverters as required by PV and BESS.³⁰

²⁹ Application, Exhibit 1, at 24-26.

³⁰ Application, at 13 and 20.

KIUC states that the rotating synchronous generators will provide increased inertia, voltage support and fault current compared to previous inverter-based projects, and that non-fossil-fueled rotating synchronous generator capability will become more critical as KIUC operates for longer periods at 100% renewable energy.³¹ Other grid benefits include the Project's ability to be black start and micro-grid capable.³²

Based on KIUC's most recent load forecast completed in 2018 prior to the COVID-19 pandemic, the Project is expected to contribute approximately 23.6% in 2024 and 18.1% in 2048 to its Renewable Portfolio Standards ("RPS").³³

As part of Order No. 37733, the Commission established the following statement of issues:

1. Whether the Commission should approve, pursuant HRS § 269-27.2, the Power Purchase Agreement ("PPA") between KIUC and AES West Kauai Energy Project, LLC ("AES"). In analyzing this issue, the sub-issues shall be considered:
 - a. Whether the energy charges, capacity charges, and other payments to be made by KIUC under the PPA are just and reasonable; and
 - b. Whether the purchased power arrangements (e.g., terms and conditions) under the PPA are prudent and in the public interest;
2. Whether, pursuant to HAR § 6-60-6(2), the Commission should authorize the inclusion of the costs (including applicable taxes and assessments) to be incurred by KIUC under the PPA in KIUC's Energy Rate Adjustment Clause, to the extent that such costs are not recovered in KIUC's base rates, except for any costs related to curtailed energy;
3. Whether the Commission should approve, pursuant to Section 2.3.g.2 of the Commission's General Order No. 7, the commitment and expenditure of funds to: (a) undertake, construct

³¹ Application, at 13 and 20; Response to CA/KIUC-IR-1c; Response to CA/KIUC-IR-37a.

³² Response to CA/KIUC-IR-1c; Response to CA/KIUC-IR-37a.

³³ Response to CA/KIUC-IR-10b. KIUC notes it is in the process of updating its load forecast following the impacts of COVID-19.

- and complete an approximately 1.5 mile new transmission line ("New Overhead Circuit"); and (b) reconductor approximately 1.0 mile of existing transmission line and install approximately 2.65 miles of single mode fiber optic line along KIUC's existing transmission system, so that all electrical output from the West Kauai Energy Project can be delivered to KIUC's system and in a dispatchable manner through the existing 57.1 kV transmission line;
4. Whether, pursuant to HRS § 269-27.6, the New Overhead Circuit should be placed, constructed, erected, and built above the surface of the ground;
 5. Whether, to the extent the Commission determines that its approval under HRS § 269-19 or otherwise is required, the Commission should grant approval for KIUC to: (a) transfer the Development Assets pertaining to the West Kauai Energy Project; and (b) convey, sublet, sublicense, assign or otherwise transfer, in whole or in part, any rights that KIUC may have with respect to the West Kauai Energy Project under any lease, license, contract, easement, right of entry, permit, authorization and/or other agreement or document, including without limitation the Project Subleases and Subeasement(s), to AES in furtherance of AES' efforts toward the development and construction of the West Kauai Energy Project, under the terms set forth in the Development Agreement; and
 6. Whether the Commission should grant any other relief that the Commission may deem applicable, required, just and/or reasonable under the circumstances and/or in order for KIUC to perform and fulfill its obligations under the PPA, the Interconnection Agreement and/or the Development Agreement.³⁴

A. WHETHER THE COMMISSION SHOULD APPROVE THE PROPOSED PPA

In its review, the Consumer Advocate considered the following factors:

- KIUC's selection of AES as a third-party project developer;
- The pricing and bill impacts associated with the proposed PPA;
- The terms and conditions of the proposed PPA;
- Proposed site location;

³⁴ Order No. 37733, at 3.

- Community outreach and benefits; and
- The Project's effect on the State's reliance on fossil fuels, greenhouse gas emissions ("GHG"), and contribution to renewable portfolio standard ("RPS") goals.

1. Selection of AES.

The Commission instituted a proceeding to investigate competitive bidding for new generating capacity in Hawaii in Docket No. 03-0372. Decision and Order No. 23121, issued on December 8, 2006 ("Decision and Order No. 23121"). It specifies that an electric utility may be exempt from the requirement to use competitive bidding for generation resources depending on its ownership structure. It states: "Upon a showing that an entity has an ownership structure in which there is no substantial difference in economic interests between its owners and its customers, such that the electric utility has no disincentive to pursue new generation projects through competitive bidding, the Commission will exempt such entity from this Framework."³⁵ Further, in Decision and Order No. 23298,³⁶ the Commission granted KIUC'S Motion for Exemption from the Competitive Bidding Framework, issued on February 13, 2007, subject to the Commission's right to reexamine at any time the exemption granted herein, consistent with the public interest or any change in circumstances involving KIUC's ownership structure.

³⁵ Docket No. 03-0372, Decision and Order 23121, Exhibit A, at 7.

³⁶ Docket No. 03-0372, Decision and Order 23298, issued on March 14, 2007, at pages 1-2.

KIUC stated in its Application that it originally intended to build, construct, and operate the WKEP by itself and/or through affiliated arrangements like that used for KRS One PV (Docket No. 2011-0323) and KRS Two (Docket Nos. 2012-0383 and 2013-0202). After conducting various efforts—including engaging several consultants to conduct due diligence and advance design and engineering plans, performing site studies, identifying the governmental permits and approvals required, and engaging in various efforts toward seeking and/or obtaining certain permits and approvals, water rights, leases, licenses, contracts, easements, rights of entry, authorizations and other agreements or documents that the development of the project would require—KIUC decided to instead enter into an arrangement with AES, where AES becomes the developer of the Project for reasons discussed further in Section II.E relating to transfer of development assets.³⁷ KIUC stated that it decided to enter into the Development Agreement and the PPA with AES due to:

(1) AES Corporation's proven experience, through its subsidiaries and affiliates, in hydropower electric/pumped storage construction and operation; (2) its proven record with KIUC on the AES Lawai Solar PV/BESS project (Docket No. 2017-0018) and the AES Kekaha Solar PV/BESS project (Docket No. 2017-0443) that have demonstrated AES Corporation's ability, through subsidiary and affiliate arrangements, to work closely, productively and efficiently with KIUC in making renewable projects a reality; (3) its proven ability to develop, own, operate, and maintain multiple power projects in the State; (4) its size and financial wherewithal to undertake a project of this scope and magnitude; and (5) its ability to immediately and smoothly take over KIUC's development activities in furtherance of making the West Kauai Energy Project come to fruition.³⁸

KIUC notes, because of its project development relationship with AES – which it describes as long and successful – through the AES Lawai and AES Kekaha projects, that it

³⁷ Application, at 31-32.

³⁸ Application, at 33-34.

believes that the risk of a third party developing the Project is significantly mitigated as compared to entering into an arrangement with a third party with no experience working with KIUC and/or with little experience with project development in Hawaii. KIUC highlights the prior working relationship established through the successful completion of these past two projects is particularly valuable and serves to mitigate risks, especially given that the WKEP is more complex, has an extended timeframe, requires multiple land and water arrangements, and is undergoing various review and approval processes in order to become operational.³⁹

In response to CA/KIUC-IR-28a, which asked if KIUC considered other third-party developers with similar qualifications and sought bids for the WKEP, KIUC stated,

... from KIUC initially planning to develop the Project on its own through an affiliated arrangement similar to the concept used by KIUC for the KRS Two solar project that was the subject of Docket Nos. 2012-0383 and 2013-0202, the resulting competitive bid process undertaken by KIUC leading to the selection of [McMillen Jacobs Associates (“MJA”)] and MJA competitively bidding various configuration and equipment specifications through procurement efforts, KIUC’s decision to no longer pursue a self-build option, and KIUC then entering into the subject PPA and Development Agreement for AES to essentially “step into the shoes” of KIUC as the developer of the Project, but with KIUC being able to utilize the various design and related cost information obtained as part of its prior developer efforts to provide the baseline for its economic analysis and negotiation of the subject PPA pricing. Through these efforts, KIUC essentially competitively bid the Project design and capital cost and then searched for and selected an acceptable development partner.⁴⁰

KIUC further states that though they considered soliciting other third-party developers, it decided it was best to engage with AES based on the above five reasons laid out in its Application, noting “[s]imply put, there are no other project developers with similar

³⁹ Response to CA/KIUC-IR-26f.

⁴⁰ Response to CA/KIUC-IR-28a.

qualifications as AES under the unique circumstances surrounding the subject Project.”⁴¹

Based on the above, the Consumer Advocate observes that KIUC’s selection of AES to develop the proposed Project generally appears reasonable, considering the mitigation of various project risks. Moreover, as discussed in the following section, KIUC appears to have leveraged the information it received through its 2018 Request for Proposal (“RFP”) and subsequent competitively bid procurement efforts to assess the reasonableness of the proposed PPA pricing. Given, however, the already existing power purchase agreements with AES, the potential aggregated amount of capacity under AES’ control and the significance of AES controlled capacity and energy to Kauai’s electric grid may need greater analysis if future agreements with AES is proposed.

2. Pricing, Net Benefits, and Bill Impacts Associated with the Proposed PPA.

a. Pricing.

KIUC estimates that under a conservative expected annual net output of 110 GWh that the WKEP will have an average annual cost of \$156.41 per MWh (including the currently available State of Hawaii Refundable Tax Credit) and \$166.30 per MWh (excluding the currently available State of Hawaii Refundable Tax Credit).⁴² The average

⁴¹ Response to CA/KIUC-IR-28a.

⁴² See Attachment CA/KIUC-IR-11a (Part 1); CA/KIUC-IR-12b; Response to CA/KIUC-IR-16a; Attachment CA/KIUC-IR-16a. The Consumer Advocate notes that these calculations are very close to the average annual cost of \$156.44 (\$166.32 per MWh without the State of Hawaii Refundable Tax Credit) provided in KIUC’s Application at page 17. As discussed in responses to CA/KIUC-IR-1 and CA/KIUC-IR-12.a, KIUC states that under a model based on KIUC’s most recent Load Forecast and 2024 oil dispatch, the Project could offset up to 118,361 MWh of oil-fired dispatch annually, which would result in an annual average cost of \$154.55 per MWh (or \$145.36 per MWh without the State of Hawaii Refundable Tax Credit.)

annual cost per MWh reflects the energy rate (with and without the currently available State Tax Credit), the Hydropower-only Monthly Capacity Charge, the PSH Monthly Capacity Charge, and the substation cost.⁴³ As noted earlier, the energy rate under the PPA is \$71.60 per MWh (or \$81.00 per MWh excluding the State of Hawaii Refundable Tax Credit).⁴⁴ The PSH and Hydropower-only monthly capacity charges are \$538,649.25 and \$205,005.75, respectively.⁴⁵

Energy Rate. KIUC states that the energy rate was the result of a bilateral arms-length negotiation between KIUC and AES, where KIUC had the benefit of its own cost projection of the PV/BESS component, including expected PV and BESS capital costs, available Federal and State incentives, debt/equity structure, and ongoing O&M expenses. Moreover, KIUC indicates that toward the later stages of negotiation, KIUC had one of its consultants perform a "backward analysis" model of the proposed AES pricing by modeling the AES PV/BESS component on a stand-alone basis using the data and assumptions from KIUC's internal project cost modeling.⁴⁶

⁴³ See Attachment CA/KIUC-IR-11a (Part 1); Response to CA-IR-16a; Attachment CA/KIUC-IR-16a. KIUC explains that "[t]hese amounts are based on the 115.7 GWh annual average energy from the solar PV array at the PPA energy rate/charge (with and without the State of Hawaii Refundable Tax Credit) plus the capacity payments, divided by the expected annual energy total of 110 GWh from the Project." Application, at 17.

The PPA price also accounts for the rehabilitation work on the upper and lower segments; its cost is estimated at over \$50 million. Response to CA/KIUC-IR-9.

⁴⁴ Application, Exhibit 1, 8-9.

⁴⁵ Application, Exhibit 1, at 66.

⁴⁶ Response to CA/KIUC-IR-11a. The Project currently qualifies for the 26% Federal ITC and a refundable State Tax Credit of \$350,000 per MWdc. See Confidential Attachment CA/KIUC-IR-11a (Part 2).

Capacity Charges. For the monthly capacity charges, KIUC relied upon capital cost estimates provided by its Energy, Procurement, and Construction ("EPC") contractor, MJA. MJA was previously selected by KIUC through its 2018 Request for Proposal ("RFP") for EPC services. KIUC states that between late 2018 through the end of 2019, MJA "performed detailed civil, electrical, and hydropower generation engineering, equipment specifications and alternative analyses, and competitively bid those configuration and equipment specifications through procurement efforts."⁴⁷ KIUC states that it was able to use the cost information obtained during the competitive bidding for the EPC contract, in addition to information from the competitive bidding that occurred within the EPC contract for components, equipment, and construction costs in negotiating PPA pricing.

In addition, KIUC notes that AES is offering a price that includes the Federal tax incentive on the applicable components of the Project despite the uncertainty and risks of future changes to the ITC including the treatment of pumped storage investment amounts for ITC qualification.⁴⁸

The Consumer Advocate observes that the energy charge for the proposed PPA appears favorable when compared to prior solar plus storage projects on Kauai. The PPA price for AES Lawai in Docket No. 2017-0018, for example, was \$110.80 per MWh while the PPA price for AES Kekaha in Docket No. 2017-0443 was \$108.50 per MWh.⁴⁹

⁴⁷ Response to CA/KIUC-IR-11.a. As discussed in response to CA/KIUC-IR-26.a, KIUC ultimately decided to utilize a third-party (AES) to Project.

⁴⁸ Response to CA/KIUC-IR-28b.

⁴⁹ See Docket No. 2017-0018. For Approval of Power Purchase Agreement with AES Lawai Solar, LLC, to Include Costs in Kauai Island Utility Cooperative's Energy Rate Adjustment Clause, and Related Matters. Application, filed on January 25, 2017 ("Docket No. 2017-0018 Application"),

Moreover, the Consumer Advocate recognizes that the WKEP is different from prior solar plus storage projects in its ability to provide firm capacity via longer-duration storage and with increased reliability, than provided by AES Lawai and AES Kekaha.⁵⁰ In order to compare the per MWh cost in relation to services provided by the Project as a whole with those provided by AES Lawai and AES Kekaha, KIUC modeled a theoretical PV/BESS long-duration storage project. Based on a 100 GWh annual average net output, an initial BESS capability of 16 hours of storage (in order to ensure at least 8 hours of storage was maintained throughout the 25-year term without any capacity replacements),⁵¹ and including the 26% Federal ITC as well as the currently available State of Hawaii Refundable Tax Credit, the model resulted in an average annual cost of approximately \$166 per MWh. In comparison, when excluding the substation cost, the WKEP has an average annual cost of \$149.83 per MWh.⁵² KIUC notes that though there are other considerations such as the Project's storage capability (i.e., does not degrade as it is used over time and provides additional on-demand storage, such that a similarly capable BESS would cost more than the \$166/MWh modeled alternative) and that more

which was approved in Decision and Order No. 34723 on July 28, 2017; Docket No. 2017-0443. For Approval of Power Purchase Agreement with AES Kekaha Solar, LLC and to Include Costs in Kauai Island Utility Cooperative's Energy Rate Adjustment Clause, for Commitment and Expenditure of Funds in Excess of \$2,500,000 for the PMRF Substation Project, and Related Matters. Application, filed on December 22, 2017 ("Docket No. 2017-0043 Application"), which was approved in Decision and Order No. 35538 on June 20, 2018. Both PPAs were also for 25-year terms.

⁵⁰ Response to CA/KIUC-IR-12.d.1.

⁵¹ KIUC notes that this amount of storage capacity is needed as KIUC regularly operates its grid at 100% renewables, at a duration as long as 10 hours in one day. Response to CA/KIUC-IR-12.d.1.

⁵² The Consumer Advocate points out that even with the substation cost included, the WKEP has a lower average annual cost (\$156.41 per MWh) than the modeled alternative.

than half of Project's energy is delivered through synchronous, rotating generators that contribute to inertia, voltage support, and fault current (as opposed to the ability of inverters to provide these functions), based on the lower average annual cost of the Project alone, KIUC contends that the WKEP "is superior to the modeled alternative."⁵³

In addition, the Consumer Advocate observes that, by AES taking on the responsibility of constructing, testing, and building the WKEP substation, particularly through the PPA's stabilized pricing structure, AES assumes the costs and risk rather than KIUC ratepayers. KIUC states that ratepayers are de-risked from the impacts of financial cost overruns and the development timeline related to maximizing tax credits and eliminating the risk that AES would need to recover any of its assumed tax attributes from KIUC if it had assumed the responsibility and failed to timely construct the substation facilities.⁵⁴ In response to CA/KIUC-IR-38.a, for example, KIUC notes that multiple award bids for labor and materials for the Aepo Substation (Docket No. 2017-0098) ended up \$2 million higher than the original estimate that was based on historically predictable costs. KIUC believes the higher costs were due to the challenge of predicting the effects of recently enacted foreign trade tariffs and other economic drivers affecting the project budget. KIUC further notes that the PMRF Substation (Docket No. 2017-0443) also saw cost increases, with actual labor bids being double the original estimate developed two years prior.⁵⁵ KIUC explains that compared to the Aepo and PMRF Substations, the WKEP substation is substantially larger and more complex due to the amount of capacity

⁵³ Response to CA/KIUC-IR-12.d.1.

⁵⁴ Response to CA/KIUC-IR-38.b.

⁵⁵ Response to CA/KIUC-IR-38.a.

being interconnected and multiple points of common coupling. As such, KIUC contends it is even more beneficial to not take on the construction responsibility including for any cost overruns.⁵⁶

Based on the above, since the pricing is not linked to fossil fuels or other variable indices (such as the Honolulu Consumer Price Index), but instead is fixed over the term of the contract (therefore eliminating bill volatility and also in effect results in a downward price trend considering inflation), and the bill impact analysis discussed in the following section,⁵⁷ the Consumer Advocate does not object to the energy rate and monthly capacity payment amounts as set forth in the PPA. That said, the Consumer Advocate notes that the capacity payment amounts are based on longer term lengths than the initial twenty-five-year Solar Term. This will be discussed further in the Section II.A.3.

Finally, the Consumer Advocate recommends that similar to the conditions imposed in Decision and Order No. 33557, issued on February 26, 2016, in Docket No. 2015-0331, in Decision and Order No. 34723 issued on July 28, 2017, in Docket No. 2017-0018, and Decision and Order No. 35538 issued on June 20, 2018, in Docket No. 2017-0443, as a condition to approval of the proposed PPA, KIUC should be required to file with the Commission and Consumer Advocate copies of all AES invoices related to the engineering, procurement, construction, and maintenance associated with the PV/BESS Facility no later than sixty (60) days after the commercial operation date. In addition, KIUC should be required to provide copies of AES' income statements or results of operations related to the PV/BESS Facility. That will allow the Commission and

⁵⁶ Ibid.

⁵⁷ Response to CA/KIUC-IR-34.a.

Consumer Advocate to better understand Hawaii-specific project costs, and better evaluate the proposed pricing in future PPA applications by means of cost benchmarking. Should these conditions be adopted, such filings should be treated as confidential information and shall be filed under seal.

b. Bill Impacts.

Using an average annual cost of \$156.41 per MWh (with the State Tax Credit) and \$166.30 per MWh (without the State Tax Credit), KIUC estimates that the PPA will save its members/customers between \$157 million and \$172 million (net present value using a 5% discount rate) over the twenty-five-year PPA term of the PV/BESS facility.⁵⁸ The 25-year annual savings was calculated based on difference between the cost of energy from the WKEP and the cost of the same energy from oil-fired generating units.⁵⁹ For the year 2024, this would result in an estimated monthly bill savings of \$5.55 (or \$4.38 excluding the State of Hawaii Refundable Tax Credit) for a residential customer using 500 kWh, for example⁶⁰ Table 1 illustrates KIUC’s calculations of the per kWh savings in each year with and without the State of Hawaii Refundable Tax Credit.

Table 1. Estimated Savings (per kWh)

	With State Tax Credit	Without State Tax Credit
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⁵⁸ Application, at 21. The NPV of \$157 million is based on an average annual cost of \$166.30 per MWh (without the State of Hawaii Refundable Tax Credit) while the \$172 million estimate follows an average annual cost of \$156.41 per MWh (including the State of Hawaii Refundable Tax Credit). See Response to CA/KIUC-IR-16a and Attachment CA/KIUC-IR-16a.

⁵⁹ Response to CA/KIUC-IR-16a; Attachment CA/KIUC-IR-16a. KIUC provided illustrative bill impacts for residential customers using between 100 kWh/month to 10,000 kWh/month, for the years 2024 through 2048.

⁶⁰ Attachment CA/KIUC-IR-16b.

2024	\$ 0.011	\$ 0.009
2025	\$ 0.014	\$ 0.011
2026	\$ 0.016	\$ 0.013
2027	\$ 0.019	\$ 0.017
2028	\$ 0.021	\$ 0.019
2029	\$ 0.025	\$ 0.023
2030	\$ 0.027	\$ 0.025
2031	\$ 0.029	\$ 0.027
2032	\$ 0.031	\$ 0.029
2033	\$ 0.034	\$ 0.032
2034	\$ 0.035	\$ 0.033
2035	\$ 0.038	\$ 0.036
2036	\$ 0.040	\$ 0.038
2037	\$ 0.041	\$ 0.039
2038	\$ 0.043	\$ 0.041
2039	\$ 0.046	\$ 0.044
2040	\$ 0.048	\$ 0.046
2041	\$ 0.050	\$ 0.048
2042	\$ 0.052	\$ 0.050
2043	\$ 0.054	\$ 0.052
2044	\$ 0.056	\$ 0.055
2045	\$ 0.059	\$ 0.057
2046	\$ 0.061	\$ 0.059
2047	\$ 0.064	\$ 0.062
2048	\$ 0.066	\$ 0.064

Source: Attachment CA/KIUC-IR-16b.

As shown above, it appears that the Project is expected to consistently deliver savings over the 25 year Solar Term.

3. Terms and Conditions of the Proposed PPA.

The Consumer Advocate recognizes that the subject PPA—which combines PV/BESS, PSH and traditional hydroelectric components — is fairly unique and as such, it is difficult to directly compare all of its provisions with those of previous standalone PV and/or PV/BESS PPAs, or standalone hydropower PPAs.⁶¹ That said, the Consumer Advocate notes the following:

⁶¹ Application, at 24-25; Response to CA/KIUC-IR-45.

a. Term Length.

As noted earlier, while the Solar Term of the PPA is 25 years, the PSH component of the Facility has a term of 40 years and the Hydro-power only component of the Facility a term of 50 years. In response to CA/KIUC-IR-14c, KIUC explains:

If the PSH Monthly Capacity Charge and the Hydropower-only Monthly Capacity Charge were on a 25-year term to match the term for the PV/BESS Facility, then the overall PPA rate would be much higher. This would be unreasonable considering that a lower overall PPA rate can be obtained by providing AES with payments over a longer period, especially due to the longer operating useful life of the PSH and Hydropower-only components of the Project - hence the negotiated 40-year and 50-year terms for those components.

More specifically, the term lengths of the Project components were chosen based on the requirement that the term length for ITC eligible equipment (i.e., the PV/BESS Facility and PSH component of the Project) not exceed 80% of the useful life. For the non-ITC eligible equipment (i.e., the Hydropower-only component of the Project), maximizing the term length of that component without exceeding the useful life provides the lowest PPA rate to KIUC. The PV/BESS term length of 25 years is 3 years less than 80% of the useful life of 35 years. The PSH component's term length of 40 years is 80% of the useful life of 50 years. The Hydropower-only component's term length of 50 years equals the useful life of 50 years.⁶²

While the Consumer Advocate recognizes that adopting PPAs with longer term lengths can reduce the pricing that is made available to customers (i.e., by spreading capacity payments over longer periods beyond the initial twenty-five-year Solar Term), the Consumer Advocate has raised concerns in prior proceedings regarding locking customers in to set rates over an extended period of time, especially where the costs for those products or services are expected to decrease in the future. In addition, in this case, there is a potential concern regarding payments so far into the future if, for example,

⁶² Response to CA/KIUC-IR-14c.

the PV/BESS PPA is not renewed and the PSH component is no longer fully utilized. KIUC states, however, that it intends to continue to use the PSH component of the Project at the end of the initial twenty-five year Solar Term—either by seeking a new or extended arrangement to continue using the PSH as an integrated storage asset, purchasing the Project as a whole, or using the PSH as a stand-alone storage asset to be powered with excess renewable energy from KIUC's grid.⁶³ As such, for this project, the Consumer Advocate does not oppose the term length of the PPA.

b. No Planned Outage Curtailment Cap.

Another main difference between the subject PPA and other PPAs is the exclusion of the Planned Outage Curtailment Cap.⁶⁴ KIUC states:

KIUC confirms that in the subject PPA, KIUC does not have the right to curtail the Project at its sole discretion, and there is no curtailment cap or curtailment credits. KIUC also confirms that it has the right in its sole discretion (whether for convenience or in order to perform maintenance on KIUC's system), and without payment to AES Lawai Solar, LLC and AES Kekaha Solar, LLC, to curtail those PV/BESS facilities up to a curtailment maximum set forth for the Planned Outage Curtailment Cap in those PPAs.

KIUC has never actually needed to curtail either of the above facilities and, as such, the Planned Outage Curtailment Cap in those PPAs has resulted in a de-facto higher PPA price than KIUC believes it could have negotiated if those PPAs did not include an allowance for curtailment without payment to AES. Based upon that history, KIUC's objective in negotiating the subject PPA was to negotiate the lowest possible PPA price by requiring that the developer models revenue for every MWh that its facility can produce without any nonpayment for any curtailment allowance.

KIUC also notes that because it will control the dispatch of WKEP and there will be flexibility in dispatching the Project due to its significant amount of

⁶³ Response to CA/KIUC-IR-49a. KIUC believes that based on historical PV/BESS PPA price trends, it will be able to replace or extend the subject PPA with a similar PPA arrangement at an equal or lower price at the end of the existing 25 year term. Response to CA/KIUC-IR-49b.

⁶⁴ See Response to CA/KIUC-IR-45.

storage, KIUC will be able to schedule the Project off (whether for convenience or in order to perform maintenance on KIUC's system) without inducing curtailment. If KIUC does need to curtail, however, KIUC is naturally incentivized to minimize the magnitude and duration of any such curtailment because it will not have this "free" allowance in the subject PPA. Without this "free" allowance, KIUC and its members will pay less overall for the Project's energy even if there is occasional curtailment. In other words, with this "free" allowance, a developer would negotiate a PPA price based on the assumption that KIUC would curtail the exact amount of the Planned Outage Curtailment Cap each year without payment. At any lower curtailment level, KIUC would be paying a higher effective PPA price (because KIUC would have left un-needed but free curtailment on the table). At any higher curtailment level, KIUC would also pay a higher effective PPA price because it would then be paying for energy not received.⁶⁵

KIUC maintains that it does not anticipate curtailing WKEP as the solar portion will be combined with enough pump load and battery storage to either use or store all of the solar energy that can be produced by the Project.⁶⁶ As such, KIUC explains that the removal of the Planned Outage Curtailment Cap (or "free allowance" of curtailment) provision has aided KIUC's ability to negotiate the lowest possible PPA price.⁶⁷

It is worth noting that subject PPA instead specifies provisions regarding Buyer Caused Curtailment and Seller Caused Curtailment (as opposed to Buyer Planned Outages and the Planned Outage Curtailment Cap in prior PPAs). As set forth in Section 6.8.2 of the PPA,

Buyer shall be obligated to pay Seller for PV System and BESS Curtailment that occurs during any period of reduced Facility Storage Capacity caused by Buyer, including dispatch that results in BESS reaching 100% SOC, lack of sufficient water in the Mana Reservoir available to be pumped, or the water level in the Puu Opae Reservoir is such that addition of water would exceed the Puu Opae Reservoir capacity. Buyer shall also be obligated to pay to Seller for PV System and BESS Curtailment that occurs during any

⁶⁵ Response to CA/KIUC-IR-18.

⁶⁶ Response to CA/KIUC-17c.

⁶⁷ Response to CA/KIUC-IR-18.

period when the PV System is producing less energy than the available Facility Storage Capacity.

KIUC explains that it does not expect to cause curtailment as a result of reduced Facility Storage Capacity, defined in Appendix A of the PPA as “at any time, the aggregate maximum amount of energy that is (i) capable of being stored in the BESS and (ii) capable of being used to pump water through the penstock and into the Puu Opae Reservoir, at that time.”⁶⁸ The total Facility Storage Capacity is 446 MWh, equivalent to 12.75 hours at 35 MW of solar output. This is much larger than current solar plus storage projects that provide between four to five hours of storage, which KIUC has not and does not expect to curtail in the future. Likewise, KIUC states that it does not anticipate curtailing during periods when the PV system produces less energy than the available Facility Storage Capacity as KIUC has at least 12.75 hours of storage (at 25 MW of solar output, there would be nearly eighteen hours of storage).⁶⁹

While the Consumer Advocate still has remaining questions about possible curtailment due to Seller’s actions or caused by Seller, it appears that the customers/members’ risks related to curtailment are mitigated and the Consumer Advocate does not object to these PPA terms.

4. Proposed Site Location

The proposed project site is located approximately four miles north of the town of Kekaha and six miles northwest of the town of Waimea. It is situated on State-owned

⁶⁸ Response to CA/KIUC-IR-19.

⁶⁹ Ibid.

lands managed by Department of Land and Natural Resources (“DLNR”), DHHL, and ADC, and uses the existing Kokee Ditch, and the Puu Lua, Puu Opae, and Mana Reservoirs⁷⁰

The Consumer Advocate notes that most of the Project’s facilities are located in the Federal Emergency Management Agency (“FEMA”) designated area Flood Zone X. However, a portion of the PV solar array and one of the locations considered for the WKEP Substation (“Substation Alternative 1”) are situated on the Mana Plain within the FEMA designated Flood Zone A (1% annual chance flood event) and in a Tsunami Evacuation Zone.⁷¹ Due to the potential of water inundation in the general area, KIUC states it is considering an alternative location for the WKEP Substation (“Substation Alternative 2”), though further engineering surveys and analyses are needed to determine which of these two locations are best suited for the WKEP Substation.⁷² Regardless of the location selected for the WKEP Substation, KIUC states the PV solar array and the WKEP Substation are being designed to meet engineering standards for high water levels associated with both flood inundation and tsunami events.⁷³ KIUC also states that building the WKEP Substation in accordance with engineering standards for high water events may further protect KIUC’s system from water inundation as its existing Mana

⁷⁰ Application, at 7.

⁷¹ Response to CA/KIUC-IR-5a

⁷² Ibid.

⁷³ For example, KIUC states the solar panels will be elevated off the ground, and the mounting system design will be based on geotechnical engineering of the specific site. Also, the PV solar array would be an unmanned facility, thereby lowering the risk to human safety in the event of a sudden flooding or tsunami event. See Response to CA/KIUC-IR-5.

substation is also within Flood Zone A and the WKEP substation will allow for decommissioning the Mana substation.

KIUC states that that the Project itself will assist in mitigating future flooding through repairs made to the Puu Lua, Puu Opae, and Mana Reservoirs. These repairs will bring the reservoirs into compliance with Hawaii State Dam Safety Standards, which would provide some protection from flooding for downstream lands and greatly reduce the risk of a dam breach. The surrounding terrain also limits the potential for additional run off into the reservoirs. Moreover, in the event of rising water levels, the three reservoirs could be drained as required by Hawaii State Dam Safety Standards.⁷⁴ Given the necessity of the WKEP substation and that it will be built to meet engineering standards for high water levels, coupled with the flood risk mitigation provided by the Project itself through the rehabilitating the reservoirs, the Consumer Advocate notes that KIUC appears to be taking measures to protect its system from flooding and tsunami events.

5. Community Outreach and Benefits.

KIUC states that the concept of a PSH project in the Puu Opae area has been explored by KIUC for about a decade in recognition of the various benefits such a project could have for KIUC's operations, its members/customers, the Kauai community, and the State.⁷⁵ As discussed earlier, KIUC maintains that, in addition to providing renewable, dispatchable generation during peak, nighttime, and cloudy/rainy periods, WKEP will

⁷⁴ Response to CA/KIUC-IR-5a.

⁷⁵ Application, at 31.

provide irrigation delivery to support agriculture on lands adjacent to the site and rehabilitation of the existing Puu Opaе, Puu Lua, and Mana Reservoirs and related ditch system infrastructure while also increasing public access and recreational opportunities associated with the Puu Lua Reservoir.⁷⁶ For example, KIUC indicates that the improved and upgraded infrastructure (mainly road improvements to the Puu Lua Reservoir access road) and rehabilitation of the Puu Lua Reservoir will benefit trout fishermen and recreational users at Puu Lua through enhanced public access to the Puu Lua Reservoir and the increased storage capacity of the reservoir.⁷⁷ KIUC and AES also maintain that the Project will support firefighting capabilities on the west side and in Koke'e.⁷⁸

KIUC further states that if the Project is not built, KIUC anticipates the following negative impacts:

- The practical implementation of the diversion and delivery of water, repair of roads, and installation of electrical distribution to DHHL-managed mauka lands would not occur or would be the responsibility of DHHL, which is not part of DHHL's 20-year plan, thus risking the viability of the lands for the foreseeable future.
- The rehabilitation and ongoing maintenance of the existing reservoirs and the Kokee Ditch would be the responsibility of the State, which could result in increased costs to the State or possibly lead to reservoirs being decommissioned and the ditch system falling into disrepair.
- The continued lack of maintenance and failure to bring the Puu Lua Reservoir up to current Hawaii State dam safety standards (e.g., Hawaii Dam and Reservoir Safety Act of 2007) could result in the decommissioning and draining of the reservoir. This would result in the elimination of a valued recreational trout fishing program and

⁷⁶ Application, at 5-6.

⁷⁷ Application, at 15; Response to PO'AI WAI OLA-KIUC-IR-3.

⁷⁸ Attachment CA/KIUC-IR-24b (Part 1), at 15.

could jeopardize water availability between rain events to DHHL and other downstream users along the ditch system.

- The disrepair of the diversions and the Kokee Ditch would lead to reduced agriculture potential for thousands of acres of public lands on the west side of Kauai, as well as the lowering in value of a State-owned asset.
- Several planned stream and ditch gages, which are to be completed as part of the Project, would not be added to tributaries of the Waimea River and the Kokee Ditch.
- The existing unlined ditch from the Puu Moe Divide to the Puu Opae Reservoir would remain in place. This unlined ditch is in significant disrepair and irrigation to pastoral lots is only served by a pipe that runs down the middle of the road, which is not a reliable situation and is of concern to the water user and the Division of Forestry and Wildlife (“DOFAW”), which is the agency that maintains the road that is on DLNR land.
- Necessary road repairs would not be completed.⁷⁹

As part of its assessment of the Project and proposed PPA, the Consumer Advocate also considered community engagement and concerns. While not part of the PPA, the Consumer Advocate notes that Section 5.06 of the Development Agreement (Exhibit 2 to the Application) requires that KIUC and AES jointly draft a community engagement plan (“Community Engagement Plan”) that identifies all of the stakeholders at the federal, state and county levels, including individual Kauai residents and community planning groups and a plan to generate community support for the Project, including how the Project will deliver positive and effective outcomes for the community. It also requires that the Parties shall agree on the Community Engagement Plan after its December 30, 2020 Execution Date. KIUC states that the Community

⁷⁹ Response to CA/KIUC-IR-9b.

Engagement Plan is not intended to be a formally executed document, but rather a plan that will be prepared, evolve, and adapt through the continued community engagement process.⁸⁰

KIUC identifies the following as stakeholders: County, State and Federal elected officials who represent districts on Kauai; County, State and Federal regulatory and government department personnel; project landowners, their representatives, tenants and beneficiaries: DLNR, DHHL, ADC, KAA; residents in the communities of Waimea, Kekaha, Mana and Kokee and KIUC members (island wide).⁸¹ KIUC and AES began their joint community engagement efforts in January 2021, which culminated in their Virtual Community Meeting held on March 31, 2021, followed by a 21-day (through April 21, 2021) comment period on a Virtual Open House.⁸² The presentation slides and script from the Virtual Community Meeting along with other documents detailing community concerns, comments, and questions gathered through community outreach efforts are summarized below:

- Attachment CA/KIUC-IR-24a (Part 1): a compilation summary of various community and public outreach efforts that have occurred from 2013 to the present. As represented by KIUC, because most of these discussions were largely informal and informational in nature, most of the activities listed would likely not have resulted in written comments being submitted.⁸³

⁸⁰ Response to CA/KIUC-IR-25c.

⁸¹ Response to CA/KIUC-IR-25a.

⁸² Response to CA/KIUC-IR-24a; Response to CA/KIUC-IR-25c.

⁸³ Response to CA/KIUC-IR-24a.

- Attachment CA/KIUC-IR-24a (Part 2): Beneficiary Consultation Report generated by DHHL in August 2017. KIUC states "...of the twenty-seven (27) comments submitted, 20 (74%) expressed support for the project. The remaining seven (7) comments raised questions about the project without expressing whether or not they supported the project. No one expressed any opposition to the project."⁸⁴
- Attachment CA/KIUC-IR-24c: questions and answers from the March 31, 2021 Virtual Community Meeting. More than 170 individuals attended, and 63 questions were posed in the webinar chat in addition to the numerous additional questions were asked and answered live during the meeting. KIUC states that while many questions were raised about the Project, no one expressed that the Project should not be pursued.⁸⁵ The question and answer document covers the majority of concerns that have been raised about the Project.⁸⁶
- Attachment CA/KIUC-IR-24a (Part 3): questions and comments from 21-day comment period following the March 31, 2021 Virtual Community Meeting. KIUC states that during the comment period, six (6) comments were submitted, only one of which questioned whether the Project should be pursued.⁸⁷

⁸⁴ Ibid.

⁸⁵ Response to CA/KIUC-IR-24a.

⁸⁶ Response to CA/KIUC-IR-24c.

⁸⁷ Response to CA/KIUC-IR-24a.

- KIUC notes that there have been numerous social media posts relating to the Project but that KIUC does not believe that any to date have opposed the project.⁸⁸
- Attachment CA/KIUC-IR-24a (Part 4): The March 21, 2021 Garden Island Newspaper news article on the Project, with “a handful” of comments raising questions and concerns, but none expressing opposition to the Project.⁸⁹
- Attachment CA/KIUC-IR-24a (Part 5), Attachment CA/KIUC-IR-24a (Part 6) and CA/KIUC-IR-24a (Part 7): The Garden Island Newspaper also ran news articles on June 6, 2017, January 25, 2021, and November 4, 2017, respectively.
- Attachment CA/KIUC-IR-24b (Part 1) and Attachment CA/KIUC-IR-24b (Part 2): March 31, 2021 Virtual Community Meeting. presentation slides and script, respectively.

Based on the supporting documentation of community outreach efforts, KIUC states it is not aware of any individuals or groups who oppose the Project⁹⁰ and believes that the Commission can reasonably find that there is community support for, or at least lack of community opposition to, the Project.⁹¹

In reviewing KIUC’s community outreach efforts, the Consumer Advocate reviewed the compilation of community comments and questions, including those

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ Response to CA/KIUC-IR-24c; Response to CA/KIUC-IR-25b.

⁹¹ Response to CA/KIUC-IR-25b.

submitted during the March 31, 2021 Virtual Community Meeting and the 21-day comment period, KIUC's responses to CA/KIUC-IR-2b, and KIUC's responses to Po'ai Wai Ola's IRs. The Consumer Advocate also considered whether AES and/or KIUC appears to have taken steps to address such concerns. Of the questions and comments put forth as part of the Virtual Community Meeting and 21-day comment period, while the Consumer Advocate observes that, consistent with KIUC's assessment, none appear to oppose the project, there are a range of topics raised including covered water flow and management, project operation and maintenance, land lease and owner, developer, project cost and benefit (financial and non-financial), Environmental Impact Statement ("EIS"), food security and farming, project location, wild life (Native Hawaiian and non-Native Hawaiian), Native Hawaiian culture and language, Native Hawaiian community, and affiliations. The greatest number of questions and comments appear to be related to water flow and management, project cost and benefit (financial and non-financial), and the EIS.

Concerns over water flow and management have also been raised in other venues. KIUC explains that it has had numerous and extensive meetings over several years with current irrigation users on the Kokee Ditch system including KAA, DHHL, DHHL tenants and beneficiaries, and the Kekaha Hawaiian Homestead Association ("KHHA"). As requested by DHHL, up to 6.9 million gallons per day of water would be delivered to DHHL's Puu Opae lands under the Project. Concerns raised by farmers on managing water flows that may impact farming on DHHL lands include: the reliable delivery of clean water, storage and irrigation access at pastoral lots and the Puu Opae Reservoir, access of water from the Puu Opae Reservoir to fields higher in elevation, removal of tree on the

Puu Opae dam embankment, current conditions of roads limiting access, and water availability for irrigation during construction.⁹² To address these concerns, KIUC states that it agreed to resolutions including but not limited to providing a pump at the Puu Opae Reservoir, conducting repairs and maintenance of both roads on DHHL property that provide access to the Puu Opae Reservoir, and making water available to farmers throughout the entire construction period.⁹³ KIUC states that it is also addressing ADC and KAA concerns around ensuring that the Project will be integrated into their current system of irrigation delivery and future plans for a pressurized irrigations system on the Mana Plains by including a new dedicated irrigation pump well drawing from the Mana Reservoir that would connect directly to KAA's new pressurized Kekaha Ditch irrigation pipeline.⁹⁴

The Consumer Advocate notes that Po'ai Wai Ola's IRs to KIUC likewise revealed waterflow and water management as an area of concern.⁹⁵ Other topics included environmental assessment,⁹⁶ public use and access,⁹⁷ cost and benefit,⁹⁸ renewable

⁹² Response to CA/KIUC-IR-2b.

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ See, for example, PO'AI WAI OLA-KIUC-IR-1, -2, -4, -7, -8, -10, -15.

⁹⁶ PO'AI WAI OLA-KIUC-IR-9.

⁹⁷ PO'AI WAI OLA-KIUC-IR-3.

⁹⁸ PO'AI WAI OLA-KIUC-IR-5.

energy,⁹⁹ wild life,¹⁰⁰ community outreach,¹⁰¹ fees,¹⁰² cultural impact,¹⁰³ land lease,¹⁰⁴ and project operation.¹⁰⁵

Based on the responses and information provided by KIUC, it appears that a number of actions have been taken to address certain concerns around water flow and potential impacts to farming operations¹⁰⁶ and that KIUC considered various studies and stakeholder inputs in determining the amount of water released to the adjacent farming lands.¹⁰⁷ The Consumer Advocate notes, more generally, that KIUC provided responses to a number of questions raised, for example, during the March 31, 2021 Virtual Community Meeting and has also provided responses and copies of certain reports as part of this proceeding.

As such, while the Consumer Advocate recognizes KIUC's and AES's outreach efforts to date, the Consumer Advocate also notes that more information will be made available through the Participants' statements of positions and through IR responses. Moreover, the Consumer Advocate recognizes that the Project must still undergo

⁹⁹ PO'AI WAI OLA-KIUC-IR-6.

¹⁰⁰ PO'AI WAI OLA-KIUC-IR-11.

¹⁰¹ PO'AI WAI OLA-KIUC-IR-12, 17.

¹⁰² PO'AI WAI OLA-KIUC-IR-13.

¹⁰³ PO'AI WAI OLA-KIUC-IR-14.

¹⁰⁴ PO'AI WAI OLA-KIUC-IR-16.

¹⁰⁵ PO'AI WAI OLA-KIUC-IR-18, 19.

¹⁰⁶ Response to CA/KIUC-IR-2b.

¹⁰⁷ See for example, Attachment CA/KIUC-IR-2a (Part 1 and Part 2) provided in Response to CA/KIUC-IR-2a.

environmental review as well as meet other regulatory and permitting requirements which will provide in further opportunities for community discussion and engagement. As community engagement should be ongoing, the Consumer Advocate recommends that KIUC and AES provide and/or support venues for community feedback and also compile past and ongoing outreach efforts, to the extent possible, into a single “living” document to reflect the concerns that have been raised, responses provided or changes made, and any ongoing dialogue between AES/KIUC and community members.

6. Project’s Effect on State’s Reliance on Fossil Fuels, Greenhouse Gas Emissions, and Contribution to Renewable Portfolio Standard Goals.

In assessing whether the PPA is prudent and in the public interest, the Commission is required under HRS § 269-6(b) to consider the hidden and long-term costs of energy.¹⁰⁸ As part of this analysis, in determining the reasonableness of the costs of utility system capital improvements and operations, HRS § 269-6(b) requires that the Commission explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and

¹⁰⁸ In the Matter of the Application of Hawaii Electric Light Company, Inc., 145 Haw. 1, 24, 445 P.3d 673, 696 (2019). “In MECO, Maui Electric requested that the PUC determine whether its proposed PPA was prudent and in the public interest, and consider the reasonableness of the associated energy charges. Id. at 265-66, 408 P.3d at 17-18. This court explained that when reviewing the PPA, the PUC was required under HRS § 269-6(b) to consider the hidden and long-term costs of energy produced under the Agreement, including the potential for increased air pollution due to GHG emissions. Id. at 266, 408 P.3d at 18.”

The state Supreme Court further clarified in In the Matter of the Application of Maui Electric Company, Ltd., 408 P.3d 1, 15 (2017), that the statute’s requirement “to consider greenhouse gas emissions applies to the fulfillment of all of the Commission's duties.” “The state Supreme Court further clarified in In the Matter of the Application of Maui Electric Company, Ltd., 408 P.3d 1, 15 (2017), that the statute’s requirement “to consider greenhouse gas emissions applies to the fulfillment of all of the Commission's duties.”

greenhouse gas emissions.¹⁰⁹ Further, in reviewing the PPA, the Commission also considers HRS § 269-92, which outlines RPS goals for electric utility companies. Below, the Consumer Advocate examined the Project's effect on the State's reliance on fossil fuels, its greenhouse gas ("GHG") emissions impact, and its contribution to KIUC's RPS.

a. Reductions to Fossil Fuel Consumption.

KIUC states that, without the WKEP, KIUC would need to, at least in the near term, continue to produce energy using ultra-low sulfur diesel and naphtha.¹¹⁰ KIUC estimates that the Project is expected to result in approximately 8.5 million fewer gallons of fuel annually – 7.8 million less gallons of naphtha and 775,000 less gallons of ultra-low sulfur diesel ("ULSD"). Over the initial 25-year term, this amounts to approximately 212 million gallons.¹¹¹ In terms of oil-fired generation, the Project could offset up to 118,361 MWh, accounting for more than 60% of Kauai's oil-fired dispatched generation, over a 12-month period.¹¹² KIUC explains that this reflects a conservative estimate given oil-fired dispatched generation for year 2020 was used instead of year 2024. Due to the impacts

¹⁰⁹ HRS §269-6(b) states:

The public utilities commission shall consider the need to reduce the State's reliance on fossil fuels through energy efficiency and increased renewable energy generation in exercising its authority and duties under this chapter. In making determinations of the reasonableness of the costs of utility system capital improvements and operations, the commission shall explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions. The commission may determine that short-term costs or direct costs that are higher than alternatives relying more heavily on fossil fuels are reasonable, considering the impacts resulting from the use of fossil fuels.

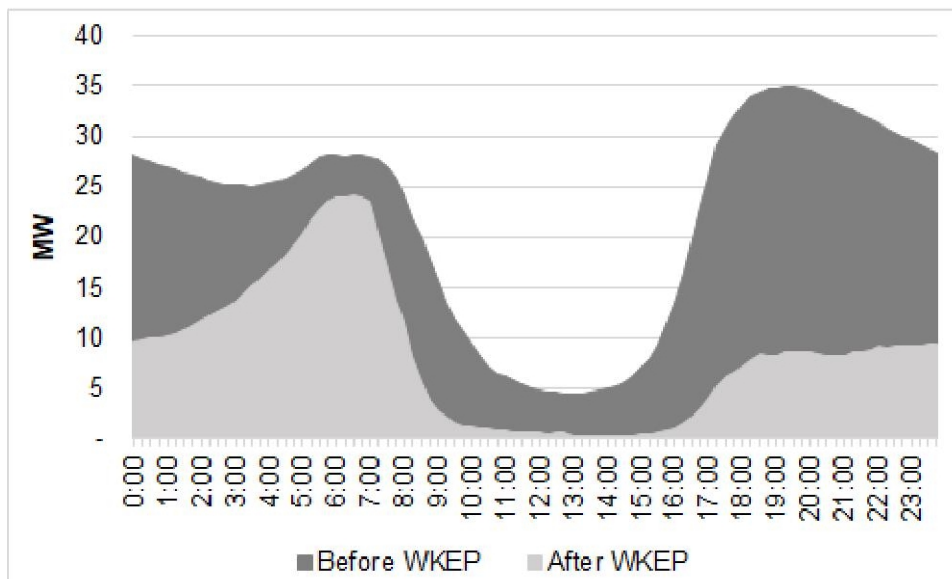
¹¹⁰ Response to CA/KIUC-IR-34a.

¹¹¹ Application, at 21-22.

¹¹² Response to CA/KIUC-IR-1a.

of COVID-19 on electricity sales, KIUC maintains that if there is enough oil-fired generation in 2020 that can be offset by WKEP, this will also be the case for 2024 and beyond given load projections will likely increase, customer-owned renewable energy systems have leveled off, and AES Kekaha is the only utility-scale renewable energy added between 2020 and 2024.¹¹³ Figure 2 shows KIUC's average daily oil dispatch before and after the WKEP.

Figure 2. Kauai Average Daily Oil Dispatch.



Source: Attachment CA/KIUC-IR-1a (Part 1) provided in Response to CA/KIUC-IR-1a.

The Consumer Advocate observes that the Project is expected to act as a firm resource while reducing fossil fuel consumption, and in turn, customer's exposure to fuel price volatility as well as Kauai's (and the State's) fuel supply reliability risk. Additionally, this avoided fossil fuel consumption will result in reduced GHG emissions as discussed in Section II.A.5.b below.

¹¹³ Response to CA/KIUC-IR-1a.

b. GHG Emissions Impact.

KIUC's consultant, MJA, estimated lifecycle CO₂ emissions associated with the construction, operation, and decommissioning of the WKEP amounts to 79,588 metric tons of CO₂ ("MTCO₂") over the initial 25-year term of the PPA.¹¹⁴ Approximately 99.9% of emissions comes from the construction of the Project, and the decommissioning of the PV/BESS Facility.¹¹⁵ The largest components include the manufacturing of solar PV panels (73%), manufacturing of solar batteries (9%), operation of equipment during the construction phase (7%), and manufacturing of steel pipe (6%).¹¹⁶ For the PSH and Hydropower-only portions, the main sources of CO₂ come from the manufacturing of the steel pipe for the penstock, concrete, cement, and operation of heavy construction equipment (for the rehabilitation of dams, repair of access roads, and other civil-related work).¹¹⁷ Estimated CO₂ emissions from the Project is presented in Table 2 below.

Table 2. Estimated Project CO₂ Emissions.

Activity	Estimated CO₂ Emissions (metric tons)	% of Total CO₂ Emissions
Construction		
Construction Equipment Operation	5,780.726	7.263%
Transportation Equipment Operation	142.466	0.179%
Construction Materials Manufacturing	73,252.025	92.039%
<i>Total</i>	<i>79,175.217</i>	<i>99.482%</i>
Operation		
Construction Equipment Operation	46.471	0.058%

¹¹⁴ KIUC provided an updated CO₂ emissions report dated May 3, 2021, as originally provided in Exhibit 5 of the Application. See Attachment CA/KIUC-IR-32 provided in Response to CA/KIUC-IR-32 ("Revised MJA Study").

¹¹⁵ Revised MJA Study provided in Attachment CA/KIUC-IR-32, at 6.

¹¹⁶ Response to CA-KIUC-IR-29b.

¹¹⁷ Response to CA/KIUC-IR-46a.

Transportation Equipment Operation	2.302	0.003%
Construction Materials Manufacturing	0.000	0.000%
<i>Total</i>	<i>48.773</i>	<i>0.061%</i>
Decommissioning		
Construction Equipment Operation	334.824	0.421%
Transportation Equipment Operation	28.930	0.036%
Construction Materials Manufacturing	0.000	0.000%
<i>Total</i>	<i>363.754</i>	<i>0.457%</i>
Project Total	79,587.744	100%

Source: Revised MJA Study provided in Attachment CA/KIUC-IR-32, at 6.

The MJA Study is augmented by estimates derived from Ramboll US's lifecycle GHG analysis conducted for the Waiawa Phase 2 Solar¹¹⁸ to account for other lifecycle stages (transmission and distribution ("T&D"), extraction of raw materials, and off-island transportation)¹¹⁹ and is also adjusted to reflect units of carbon dioxide equivalent ("CO₂e") by quantifying emissions from CH₄ and N₂O.¹²⁰ Generally, KIUC maintains that although the Ramboll Study is for a different island and project, both are being constructed by AES Corporation (through a project subsidiary) with similar equipment and suppliers; as such, the Ramboll Study is adjusted for differences between Waiawa Phase 2 Solar and the WKEP.¹²¹ KIUC explains that MJA did not conduct a detailed lifecycle analysis of T&D as it would be unduly timely and costly to retain an additional consultant due to the relatively small amount attributable to T&D, especially in comparison to avoided emissions.¹²² Meanwhile, off-island transportation (i.e., upstream transportation) for

¹¹⁸ See Docket No. 2020-0137. Waiawa Phase 2 Solar GHG Analysis, prepared by Ramboll US Corporation, filed on October 13, 2020 ("Ramboll Study").

¹¹⁹ Response to PUC-KIUC-IR-107; Response to PUC-KIUC-IR-109; Response to PUC-KIUC-IR-110.

¹²⁰ Response to CA/KIUC-IR-46b.

¹²¹ Response to PUC-KIUC-IR-107 and PUC-KIUC-IR-109.

¹²² Response to CA/KIUC-IR-107.

project materials were not estimated because suppliers have not yet been selected.¹²³

As for quantifying only CO₂ in the MJA Study, KIUC states that CH₄ and N₂O only comprise about 0.5% of total GHG emissions for mobile on/off road sources and less than 1% of total GHG emissions for stationary sources. Based on the U.S. Environmental Protection Agency's ("EPA") emission factors, KIUC maintains that the contribution of CH₄ and N₂O to overall GHG emissions from the WKEP to be insignificant.¹²⁴

With respect to T&D, KIUC contends that a reasonable estimate of lifecycle emissions would be twice the amount reported in the Ramboll Study, or 10,982 MTCO₂e (i.e., 5,491 MTCO₂e times two).¹²⁵ With respect to raw material extraction, KIUC applies a multiplier of 1.75 to the total for Construction Materials Manufacturing of 73,252 MTCO₂, resulting in 128,191 MTCO₂.¹²⁶ To translate this to MTCO₂e, KIUC divides 128,191 MTCO₂ by 80% based on U.S. EPA data that shows CO₂ accounts for 80% of 2019 GHG emissions in the U.S., resulting in a total of 160,239 MTCO₂e.¹²⁷ For off-island

¹²³ Response to PUC-KIUC-IR-110.

¹²⁴ Response to CA/KIUC-IR-46b.

¹²⁵ Response to PUC-KIUC-IR-107. Though the Ramboll Study does not include operation and maintenance ("O&M") of the T&D infrastructure, KIUC states that this is likely very small relative to emissions from raw materials extraction and manufacturing and construction. KIUC also notes that though the T&D infrastructure between the two projects are not entirely comparable (e.g. transmission line length of 3,000 feet in Waiawa Phase 2 Solar versus 7,920 feet for the WKEP), there are many similarities such as the size and equipment associated with the substation.

¹²⁶ Response to CA-PUC-IR-109. Since the Ramboll Study estimates raw material extraction and manufacturing together, KIUC adjusts for the different sizes of the two projects (Waiawa Phase 2 Solar has a 60 MWdc PV array and 240 MWh BESS while the WKEP has a 56 MWdc PV array and 70 MWh BESS). KIUC applies a ratio of 56/60 to 131,861 MTCO₂e for the solar portion from the Ramboll Study to arrive at 123,070 MTCO₂e. For the energy storage portion, KIUC applies a ratio of 70/240 to 35,392 MTCO₂e, yielding 10,323 MTCO₂e. As these adjusted values are roughly 2.1 and 1.4 times the reported values for manufacturing alone in the Revised MJA Study provided in Response to CA/KIUC-IR-32, KIUC believes 1.75 is a reasonable multiplier to account for raw material extraction.

¹²⁷ Response to PUC-KIUC-IR-109.

transportation (i.e. upstream transportation), KIUC adopts a value of 840 MTCO₂e from the Ramboll Study.¹²⁸ Lastly, KIUC adjusted other CO₂ values from the MJA Study to approximate CO₂e.¹²⁹ Table 3 summarizes the WKEP's GHG emissions by project stage.

Table 3. WKEP GHG Emissions.

Project Stage		GHG Emissions (MTCO ₂ e)		
		Full Project	T&D Infrastructure	Solar, Storage, PSH, and Hydro
Upstream	Raw Materials Extraction & Manufacturing	168,235	7,996	160,239
	Transportation	840	346	494
	Construction	7,914	2,104	5,810
Project Operations	Operations & Maintenance	1,225	1,225	
Downstream	Transportation	233	64	169
	Decommissioning & Disposal	3,861	472	3,389
Total Project Operations		1,225		
Total Project Lifecycle		182,308		

Source: Attachment PUC-KIUC-IR-107 (Part 1) provided in Response to PUC-KIUC-IR-107.

Note: According to Response to PUC-KIUC-IR-109, total emissions from Raw Materials Extraction & Manufacturing should be 168,239 MTCO₂e (rather than 168,235 MTCO₂e).

A separate analysis by Stillwater Associates estimated lifecycle GHG emissions avoided from the Project or, in other words, the emissions associated with continuing to use naphtha and ULSD at KIUC's Port Allen Generating Station and Kapaia Power

¹²⁸ Response to PUC-KIUC-IR-110. KIUC notes that though the Waiawa Phase 2 Solar does not require hydropower turbine generators, pumps and penstock like the WKEP, 52 battery containers are needed as opposed to WKEP which only requires 14.

¹²⁹ See footnote 3 in Response to PUC-KIUC-IR-107.

Station instead if the Project was not built.¹³⁰ The Well-to-Grid ("WTG") lifecycle analysis accounts for emissions from crude mix and transport, refinery processing, product transport, and generation, of which power generation was the largest source.¹³¹ Total annual lifecycle GHG emissions were estimated to range from 180,961 to 216,834 MTCO₂e in 2020 and 166,163 to 204,643 MTCO₂e in both 2021 and 2022. The range in each year is largely due to power demand to be supplied by the two generating stations and the share of demand for naphtha or ULSD, and to a lesser extent, whether the liquid fuels are sourced from the Par Kapolei refinery (primary source) or by imports from South Korea (most likely alternative in the event of an extended outage at Par Kapolei).¹³²

Based on the Project's emissions and avoided GHG emissions, KIUC estimates the net GHG emissions impact of the Project's operation stage and lifecycle is approximately 2,018,487 MTCO₂e and 2,508,877 MTCO₂e, respectively over the 25-year period (Table 4).¹³³

¹³⁰ See Liquid Fuels GHG Lifecycle Analysis. Prepared by Stillwater Associates, dated August 26, 2020 provided in Attachment CA/KIUC-IR-31 in Response to CA/KIUC-IR-31 ("Stillwater Associates Study")

¹³¹ See Stillwater Associates Study, Table 8 provided in Attachment CA/KIUC-IR-31, at 12.

¹³² Stillwater Associates Study provided in Attachment CA/KIUC-IR-31, at 12-13.

¹³³ Response to PUC-KIUC-IR-107. It is not clear why avoided lifecycle emissions changed to 2,691,185 MTCO₂e from the previous estimate of 2,729,375 MTCO₂e which was derived by multiplying the average of the naphtha and ULSD total WTG metric tons of CO₂eq/MWh from Table 8 of the Stillwater Associates Study provided in Attachment CA/KIUC-IR-31 by 110,000 MWh annual generation and by 25 years. Under the original avoided lifecycle emissions estimate, net lifecycle emissions reduction would amount to 2,547,067 MTCO₂e.

Table 4. Net Avoided Lifecycle Emissions.

	Project Emissions	Avoided Emissions from Fossil Fueled Plants MTCO₂e	Net Emissions
Operations	1,225	2,019,712	2,018,487
Lifecycle	182,308	2,691,185	2,508,877

Source: Attachment PUC-KIUC-IR-107 (Part 1) provided in Response to PUC-KIUC-IR-107.

KIUC maintains that emissions from T&D, raw material extraction, and upstream transportation pale in comparison to avoided emissions from not building the Project.¹³⁴ In addition, CH₄ and N₂O account for a small share in comparison to CO₂.¹³⁵ However, the Consumer Advocate notes KIUC's updated calculation reveals that excluding raw materials extraction greatly underestimates the Project's lifecycle emissions. In fact, emissions from raw materials extraction and manufacturing nearly doubled (160,238 MTCO₂e compared to 91,565 MTCO₂e for manufacturing alone, or 128,191 MTCO₂ versus 73,252 MTCO₂)¹³⁶ and by far comprise the largest share of the Project's GHG emissions as shown above in Table 3. In addition, excluding CH₄ and N₂O from the original analysis is problematic. This is mainly in order to facilitate an apples-to-apples comparison as the GREET model used to calculate the avoided GHG emissions includes CH₄ and N₂O. Otherwise, the Project's emissions relative to avoided emissions is understated.

¹³⁴ Response to PUC-KIUC-IR-107; Response to PUC-KIUC-IR-109; Response to PUC-KIUC-IR-110.

¹³⁵ Response to CA/KIUC-IR-46b; Response to PUC-KIUC-IR-107.

¹³⁶ Response to PUC-KIUC-IR-109. Following KIUC's methodology to convert CO₂ to CO₂e, 91,565 MTCO₂e is calculated by dividing 73,252 MTCO₂ by 80%.

The Consumer Advocate also observes the rather crude estimation methods used to provide a more complete view of the Project's lifecycle GHG impact. Though avoided emissions from not building the Project greatly exceeds that of the Project's, further thought, coordination, and transparency upfront should be given to presenting the Project's GHG impact. For example, the Revised MJA Study should state which lifecycle stages are not estimated and why. Also, the unit of emissions should be coordinated between the Project's impact and avoided emissions.

Having reviewed KIUC's GHG analysis, the Consumer Advocate also highlights the importance of providing a comprehensive lifecycle study that is well-documented and trackable, with assumptions and sources, and calculations intact. For example, the final rolled-out estimates by project stage provided in Table 3 above (as originally provided in Attachment PUC-KIUC-IR-107 (Part 1)) should be able to be traced back to the various components with assumptions and sources documented, and calculations intact. It was difficult to review the CO₂ emissions estimates presented in Attachment CA/KIUC-IR-30 (Part 1) as the quantity and hours provided (where applicable) for each line item were hard-coded without any explanation of how the resulting CO₂ emissions estimate was derived. KIUC explains that these quantity and hour values estimated were then input into two emissions calculators for off-road construction equipment and on-road construction equipment. Meanwhile, materials manufacturing was determined by estimating the total volume, mass, or area required, which was then input into various emissions calculators.¹³⁷ The Consumer Advocate observes that the emissions

¹³⁷ Response to CA/KIUC-IR-47.

calculators provided appear to only address engines (e.g., F-250, Semi-Truck).¹³⁸ Similarly, while there are calculations and supporting documents provided for manufacturing emissions associated with PV panels and battery, it is not clear how emissions for the remaining materials were estimated.¹³⁹

Lastly, the Consumer Advocate notes that KIUC contends that to attempt to provide a GHG analysis beyond the twenty-five year period would be “unreliable and unduly speculative.”¹⁴⁰ GHG emissions were calculated for the initial twenty-five term as approximately 99.9% of emissions from the Project comes from construction (mainly manufacturing of the PV panels) and decommissioning of the PV/BESS facility. KIUC notes that the initial twenty-five-year Solar Term could be extended, and depending on whether the components of the PVBESS Facility are still operational or would need to be replaced, it would be more appropriate at that time to provide any GHG-related information in support of such an extension.¹⁴¹

Notwithstanding the above comments, based on a review of the information provided by KIUC, with the estimated reduction of approximately 2,018,487 MTCO₂e for the Project’s operation and 2,508,877 MTCO₂e for each stage of the Project’s lifecycle over twenty-five years, the Consumer Advocate does not object to KIUC’s GHG analysis at this time. That said, the Consumer Advocate seeks clarity on how all of the materials and equipment will be handled at the end of its useful life (e.g., repurposed, recycled,

¹³⁸ See Attachment CA/KIUC-IR-30 (Part 2) to (Part 4).

¹³⁹ See Attachment CA/KIUC-IR-30 (Part 1).

¹⁴⁰ See footnote 28 in Application, at 22.

¹⁴¹ Ibid.

incinerated, or landfilled) twenty-five to fifty years or more from now. It will be important to develop an end-of-life management plan which also addresses land management/restoration.

As presented within the MJA study, only limited construction and transportation equipment are included in the decommissioning phase portion of the emissions analysis. This includes: 1 air compressor (gasoline), 1 backhoe with hoepack (diesel), 1 CAT 336 excavator (diesel), 1 CAT 352 excavator (diesel), 1 CAT 950 front end loader (diesel), 2 CAT 272 skidsteer (diesel), 2 400 amp welder (diesel), 1 water truck 2000 gallon (diesel), 3 F-250 trucks (diesel), and 3 semi-trucks (diesel).¹⁴² KIUC states it anticipates that all PV/BESS, turbine, pump, and major electrical equipment will be repurposed or recycled to the extent required and possible, or disposed of in accordance with the applicable regulation(s) in effect at the time of disposal¹⁴³ and that KIUC AES intends to develop an end-of-life management plan for the Project equipment during the contract term when end-of-life programs have been defined and/or by the terms of the final land use agreements.¹⁴⁴

The Consumer Advocate recognizes the speculative nature of any plan for decommissioning twenty-five years or more into the future. However, the Consumer Advocate nevertheless contends that having a basic plan or outline of a possible plan would provide some assurances that actions required to address concerns with acceptable disposal following the end of the Project's life as well as reflect a more

¹⁴² Attachment CA/KIUC-IR-30 (Part 1) provided in Response to CA/KIUC-IR-30, at 3.

¹⁴³ Response to CA/KIUC-IR-33ab. See also Response to PUC-KIUC-IR-111a.

¹⁴⁴ Response to CA/KIUC-IR-33a; Response to CA/KIUC-IR-33b.

accurate GHG emissions impact associated with decommissioning. Moreover, the Consumer Advocate has some concerns on who will ultimately bear the costs of decommissioning the interconnection facility, especially if KIUC will be able to assume ownership, and, therefore, will be responsible for its maintenance when the PPA concludes. Thus, the Consumer Advocate encourages KIUC to secure a more binding plan as it relates to decommissioning so that neither KIUC nor its members/customers will be left holding the bag when decommissioning is required.

The Consumer Advocate recognizes that estimation and evaluation of lifecycle GHG emission analyses is still an evolving process. As such and based on the above, as it relates to future GHG analyses, the Consumer Advocate encourages KIUC to improve the processes and assumptions used to evaluate and present GHG impacts associated with future projects and operations in a consistent, objective, and transparent manner.

c. Contribution to RPS

The PPA will also contribute positively to KIUC's RPS goals, which mandate that 40 percent of electricity sales come from renewable energy sources by 2030, 70 percent by 2040, and 100 percent by 2045.¹⁴⁵ Based on KIUC's most recent load forecast completed in 2018 prior to the COVID-19 pandemic, the Project is expected to contribute approximately 23.6% in 2024 (year 1) and 18.1% in 2048 (year 25) to its RPS. KIUC states that the WKEP is anticipated to result in KIUC achieving 79% RPS by 2030.¹⁴⁶

¹⁴⁵ See HRS § 269-92(a).

¹⁴⁶ Application, at 19.

Consumer Advocate requests that updated sales and the WKEP's contribution to KIUC's RPS during its initial twenty-five-year term be provided upon completion of KIUC's updated load forecast.

B. WHETHER THE COSTS INCLUDING RELATED TAXES AND ASSESSMENTS BE INCURRED BY KIUC UNDER THE PPA SHOULD BE INCLUDED IN KIUC'S ENERGY RATE ADJUSTMENT CLAUSE ("ERAC") TO THE EXTENT THAT SUCH COSTS ARE NOT RECOVERED IN KIUC'S BASE RATES, EXCEPT FOR ENERGY COSTS RELATED TO CURTAILED ENERGY.

KIUC seeks authorization, pursuant to HAR § 6-60-6(2),¹⁴⁷ to include all of the payments and related revenue taxes incurred by KIUC in connection with the PPA in KIUC's ERAC, to the extent that such payments are not recovered in KIUC's base rates. KIUC states that it is not requesting authorization at this time to include any payments for curtailed energy under the PPA in KIUC's ERAC, consistent with prior Commission decisions.¹⁴⁸ KIUC also states that consistent with Section IV.2.B of Decision and Order No. 33557, as amended by Order No. 33578, issued on March 10, 2016, in Docket No. 2015-0331, the Company understands that "[t]his does not preclude KIUC from seeking recovery of curtailment payments, if any, incurred under the PPA through an alternative mechanism." KIUC does not anticipate seeking recovery of curtailment

¹⁴⁷ No changes in fuel and purchased energy costs may be included in the fuel adjustment clause unless the contract or prices for the purchase of such fuel or energy have been previously approved or filed with the Commission.

¹⁴⁸ Application, footnote 5.

payments through any alternative mechanism.¹⁴⁹ This is because, by design of the WKEP, KIUC does not anticipate curtailing the WKEP.¹⁵⁰

As the Consumer Advocate does not object to the PPA, the Consumer Advocate will not object to the Commission granting KIUC authorization to include the payments related to the proposed PPA and related revenue taxes in KIUC's ERAC to the extent that such costs are not recovered in KIUC's base rates with the specific understanding that KIUC will not be including any costs associated with curtailed energy in its ERAC. If, for whatever reason, there is curtailment that persists, however, the Consumer Advocate believes that requiring KIUC to report the curtailed amount and the associated costs would be a reasonable regulatory condition since, if such curtailment occurs, it is likely that KIUC would be tracking such information anyway. Subsequently, if the curtailment persists, it can be later determined whether regulatory action is required.

C. WHETHER PURSUANT TO SECTION 2.3.G.2 OF THE COMMISSION'S GENERAL ORDER NO. 7, FUNDS SHOULD BE EXPENDED TO UNDERTAKE, CONSTRUCT, AND COMPLETE THE NEW OVERHEAD CIRCUIT AND CONDUCTOR WORK

As discussed above, AES is developing, completing, and paying for all of the components of the WKEP, except for the New Overhead Circuit and Conductor Work.¹⁵¹ The New Overhead Circuit portion consists of a roughly 1.5 mile new 57.1 kV transmission line to connect to the existing PMRF to Mana transmission line. The Conductor Work portion consists of: 1) upgrading an approximately 1.0 mile segment of the

¹⁴⁹ Application, at 2; Response to CA/KIUC-IR-39.

¹⁵⁰ Response to CA/KIUC-IR-39; Response to CA/KIUC-IR-17c.

¹⁵¹ Ibid.

existing 57.1 kV transmission line to support the dispatch capacity of the Project and 2) installing approximately 2.65 miles of single mode fiber optic line between the PMRF Substation and WKEP Substation along the existing transmission line.¹⁵²

The New Overhead Circuit and Conductor Work to be paid for by KIUC is at least \$2.7 million,¹⁵³ with the following budget items and cost:

Table 6. Cost Breakdown of the New Overhead Circuit and Conductor Work.

Item	Cost	Share of Costs
<i>Transmission Line</i>		
Material	\$882,064.80	33%
Labor	\$351,118.23	13%
<i>Fiber</i>		
Contractor	\$839,685.53	31%
Engineering	\$89,057.56	3%
Survey	\$103,900.48	4%
Contingency	\$445,287.78	16%
Total	\$2,711,114.38	100%

Source: Table 3-1 in Exhibit 6, at 13.

In response to CA/KIUC-IR-35, KIUC explains that the cost estimate is at least \$2.7 million even though there is a line item for contingency:

The cost estimate is based on KIUC's preliminary engineering for the New Overhead Circuit and Conductor Work. Contractor labor for digging is invoiced based on a time and material basis since the contractor will not be able to foresee what delays could be incurred while digging. Additionally, contractor work for fiber is an estimate as a result of prior contracts. KIUC will not know the true cost until bids are received. Other unforeseen costs could also arise due to factors such as an increase in material demands across the nation for similar components, an unexpected shortage in such components, and various unknown conditions that maybe experienced while the subject work is being performed, all of which could drive up the cost of the work. Additionally, the budgeted amount is based on the network upgrades terminating at the WKEP Substation location at Substation Alternative 1 as discussed in the response to CA/KIUC-IR-5, part a. If Substation Alternative 2 is instead chosen for the substation location, costs

¹⁵² Application, at 3; Exhibit 6, at 5.

¹⁵³ Application, at 27; Exhibit 6, at 13.

would be impacted as this would involve additional engineering, surveying, materials and labor to complete this portion of the Project.

The Consumer Advocate notes that there is some remaining uncertainty with the exact scope of the New Overhead Circuit and Conductor Work. As discussed above in Section II.A.4, KIUC is considering an alternative location for the WKEP substation due to the potential of water inundation in the area; though further engineering surveys and analyses are needed to determine which location is better suited. Substation Alternative 1, along with a portion of the PV solar array and portions of the Network Upgrades (New Overhead Circuit and Conductor Work) are situated within FEMA designated Flood Zone A and in a Tsunami Evacuation Zone. , KIUC states that it does not expect the New Overhead Circuit and Conductor Work to be affected due to the height of the upgrade.¹⁵⁴

That being said, although the Consumer Advocate recognizes that the proposed New Overhead Circuit and Conductor Work is necessary to interconnect the WKEP project to KIUC's system, the Consumer Advocate reserves its right to review the actual project costs at the time of KIUC's next rate proceeding. Furthermore, the Consumer Advocate recommends that KIUC report any changes to the location of the substation.

¹⁵⁴ Response to CA/KIUC-IR-5a.

D. WHETHER THE NEW OVERHEAD CIRCUIT SHOULD BE PLACED, CONSTRUCTED, ERECTED, AND BUILT ABOVE THE SURFACE OF THE GROUND PURSUANT TO HRS § 269-27.6(A).

Pursuant to HRS § 269-27.6, applied to this request, the following factors should be considered in the construction of a new 46 kV or greater overhead electric transmission system:

- (1) Whether a benefit exists that outweighs the costs of placing the electric transmission system underground;
- (2) Whether there is a governmental public policy requiring the electric transmission system to be placed, constructed, erected, or built underground, and the governmental agency establishing the policy commits funds for the additional costs of undergrounding;
- (3) Whether any governmental agency or other parties are willing to pay for the additional costs of undergrounding;
- (4) The recommendation of the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, which shall be based on an evaluation of the factors set forth under this subsection; and
- (5) Any other relevant factors.

The following is the Consumer Advocate's discussion of the factors set forth in HRS § 269-27.6.

1. Whether a Benefit Exists that Outweighs the Costs of Placing the Electric Transmission System Underground.

KIUC estimates the total capital cost to place the proposed 57.1 kV¹⁵⁵ transmission line on overhead facilities at approximately \$2.71 million; if the lines were installed in underground facilities, KIUC estimates that the total capital cost is approximately \$8.74

¹⁵⁵ Response to CA/KIUC-IR-41.

million,¹⁵⁶ which is a difference of approximately \$6.03 million. KIUC asserts that there would be no material benefit in KIUC incurring the additional costs to construct the new transmission circuit underground instead of overhead. KIUC states that:

While KIUC acknowledges that constructing a line underground may provide some level of additional reliability by being less subject to human effects (such as automobile accidents) and natural events (such as high winds, rains, contact with trees, etc.), KIUC notes the New Overhead Circuit will be located in an area with no public access (and therefore very limited traffic) and over managed agricultural lands without trees. KIUC also notes the additional difficulty in repairing damaged underground lines and facilities because of the added complexity involved in locating, accessing, and then repairing the specific damaged portion or portions, which often requires the use of special equipment. As a result, the time needed and costs involved to repair a damaged portion of an underground transmission line are often significantly greater than repairing an overhead line.^{157, 158}

To determine whether there are any benefits that would outweigh the costs of placing the 57.1kV New Overhead Circuit in underground facilities, the Consumer Advocate considered the following:

1. Whether the proposed New Overhead Circuit will result in added visual obstruction in the area.

¹⁵⁶ Response to CA/KIUC-IR-22.a.

¹⁵⁷ KIUC acknowledges that constructing the transmission circuit underground may have greater reliability by being less susceptible to human effects (e.g., automobile accidents) and natural events (e.g., high winds, rains, contact with trees), but notes that the New Overhead Circuit will be located where there is no public access (i.e. limited traffic) and over managed agricultural lands without trees. Additionally, the time and costs to find and repair damages to an underground transmission line would likely be substantially greater. Application, at 29.

¹⁵⁸ KIUC notes there have been no transmission outages on this segment of the line caused by recent weather events. Weather-related causes are either due to high winds, which result in trees or branches to fall on the lines, or amplified hardware failure as a result of rot or corrosion. However, there are no trees at height to cause a transmission outage, and existing hardware will be inspected and replaced as needed to minimize the risk of any amplified hardware failure. See Response to CA/KIUC-IR-22b.

2. Whether other factors exist that support the underground placement of the New Overhead Circuit.

Based on a review of the information provided by KIUC, KIUC estimates that the New Overhead Circuit is roughly 3.7 miles from the nearest residential area.¹⁵⁹ As such and given that there are existing transmission lines in the area, the visual impact of overhead placement should be minimal. Though the operation and maintenance costs of the New Transmission line if it is undergrounded are estimated to be of the cost of operating and maintaining overhead lines, KIUC states the slightly lower cost does not justify constructing the line underground given the much higher costs to place it underground and the difficulty in repairing damaged underground lines and facilities.¹⁶⁰

The Consumer Advocate notes that the same observations can be made regardless of whether an alternative location for the WKEP substation (Substation Alternative 2) is selected.¹⁶¹ Given that Substation Alternative 2 is also approximately 3.7 miles from the nearest residential area (situated on ADC and 1,500 feet apart from Substation Alternative 1), and while partially visible from certain locations along Kaumualii Highway, largely blocked by vegetations, KIUC does not believe there are changes to any public resources or public impact concerns or lack thereof.¹⁶²

¹⁵⁹ Application, at 26; Exhibit 6, at 5.

¹⁶⁰ Response to CA/KIUC-IR-41d. According to KIUC the higher O&M costs associated with overhead lines is the cost of clearing away trees. However, because the New Transmission Line is located in agricultural seed land where there are no large trees, after removing tree trimming costs, the cost of operating and maintaining underground lines are roughly 85% the costs of overhead lines.

¹⁶¹ Response to CA/KIUC-IR-42b.

¹⁶² Response to CA/KIUC-IR-42a.

2. Whether There Is a Governmental Public Policy Requiring the Electric Transmission System To Be Placed, Constructed, Erected, Or Built Underground, and the Governmental Agency Establishing the Policy Commits Funds for the Additional Costs of Undergrounding.

As noted in prior statements of position, the Consumer Advocate is not aware of any governmental public policy or mandate requiring the underground placement of transmission systems. The Consumer Advocate recognizes that although there have been past State legislative efforts to study the feasibility of requiring the underground placement of all utility facilities in the State, to date, none of the recommendations have resulted in legislative measures requiring the underground placement of all electric transmission lines. Thus, the Consumer Advocate is not aware of any governmental requirement to underground the proposed 57.1kV transmission line for the proposed project area.

3. Whether Any Governmental Agency Or Other Parties Are Willing to Pay for the Additional Costs of Undergrounding.

KIUC states that states that no governmental agency or third party has indicated any willingness to pay for such undergrounding and is not aware of any agency or party that would be willing to do so.¹⁶³

4. Any Other Relevant Factors.

The Consumer Advocate notes the potential impact of the New Overhead Circuit to endangered birds. KIUC states that:

¹⁶³ Application, at 30; Response to CA-IR-23a.

KIUC completed a short-term Habitat Conservation Plan (“HCP”) in 2011, and is currently developing a 30-year HCP in coordination with United States Fish and Wildlife Service (“USFWS”) and Department of Land and Natural Resources, Division of Forestry and Wildlife (“DOFAW”). KIUC’s overhead electrical system has the potential to impact certain threatened and endangered seabird species on Kauai, including Newell’s shearwater, Hawaiian petrel and Band-rumped storm petrel, and certain threatened and endangered waterbird species including Hawaiian goose, Hawaiian duck, Hawaiian stilt, Hawaiian common gallinule, and Hawaiian coot . . .

Based on numerous discussions with USFWS, DOFAW and species experts, the Mana Plain area where the New Overhead Circuit will be located is a low risk area for endangered and threatened seabirds. The existing seabird colonies on Kauai that are being actively monitored are located in the northwestern part of Kauai. Through acoustic monitoring, the Newell shearwater. Band-rumped storm petrel and Hawaiian petrel have been located towards the back of Waimea Canyon. Movement patterns on the west side of Kauai are monitored through radar, powerline monitoring and visual observations, which confirm that the Mana Plain area is a low risk area for endangered/threatened seabird powerline strikes. Only the Newell shearwater have been documented flying over the general Mana Plain area, and their flight passages have been shown to be higher than powerlines in this area due to the surrounding terrain and their upland destinations. Therefore, risks of seabird collisions are low. Visual observations in ana have confirmed that avian movement in the area is largely dominated by waterbirds. Due to the prevalence of waterbirds in the Mana Plain area and the lower flight height associated with waterbirds, there is potential for collisions with powerlines.¹⁶⁴

The Consumer Advocate notes that KIUC is also taking measures that it has taken in other projects to minimize potential risks for powerline collisions (e.g., horizontal configuration used to the maximum extent practicable, line height will be as low as feasibly possible).

5. The Recommendation of the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, Which

Shall Be Based on an Evaluation of the Factors Set Forth Under This Subsection.

Based on the above discussions, the Consumer Advocate does not object at this time to the proposed New Overhead Circuit and Conductor Work. As noted above, there are still remaining uncertainties with the exact scope of the New Overhead Circuit and Conductor Work and also recognizing that the Participants' statements of positions will be filed today, the Consumer Advocate notes that any issues raised should be addressed by KIUC in its reply statement of position.

E. WHETHER KIUC REQUIRES COMMISSION AUTHORIZATION PURSUANT TO HRS § 269-19(A); IF SO, WHETHER KIUC SHOULD BE ALLOWED TO TRANSFER THE DEVELOPMENT ASSETS PERTAINING TO THE WEST KAUAI ENERGY PROJECT AND CONVEY, SUBLET, SUBLICENSE, ASSIGN OR OTHERWISE TRANSFER ANY RIGHTS THAT KIUC MAY HAVE WITH RESPECT OT THE WEST KAUAI ENERGY PROJECT TO AES.

As set forth in Section 2.02 of the Development Agreement, in consideration of the conveyance, assignment, and transfer of the Development Assets from KIUC to AES, AES will make five (5) separate payments to KIUC at specified times and in the amounts set forth in the Developer Agreement, which the Company states will in effect reimburse it for costs incurred (various hydro development, engineering, and design costs) over the last ten years in furtherance of the Project.¹⁶⁵ These payments align with milestones—PUC Approval Milestone, Effective Date Milestone, Permit Milestone, and Notice to

¹⁶⁵ Application, at 34-35 and 37.

Proceed (“Notice to Proceed”) Milestone.¹⁶⁶ As defined in the Development Agreement, the Development Assets are:

. . . any and all information in written or electronic form that has been developed or obtained by KIUC, its Affiliates or Joule Group in connection with the Project which KIUC or its Affiliates own, or hold and have a right to rely upon, necessary or useful to the development, construction or design of the Project, including the Reports and Books and Records.¹⁶⁷

The Development Agreement requires that KIUC shall deliver, among other things on or prior to the Effective Date (as defined in the Development Agreement) to AES the following:

- (a) a copy of its executed signature page to the ADC Kokee Ditch Sublease;
- (b) a copy of its executed signature page to the ADC Mana Plains Sublease;
- (c) a copy of its executed signature page to the ADC Mana Reservoir Sublease;
- (d) a copy of its executed signature page to the DHHL Lands Sublease;
- (e) a copy of its executed signature page(s) to the DLNR Subeasement(s);
- (f) a copy of its executed signature page to the Interconnection Agreement;
- (g) any and all required third party consents, including consents to the transfers of rights described in subparagraphs (a), (b), (c), (d) and (e) above;
- (h) a copy of its executed signature pages to the Bill of Sale;
- (i) copies of letters from third-party consultants authorizing Developer’s use of and reliance on each of the Reports, in form and substance reasonably acceptable to Developer;
- (j) possession of all Development Assets. . . ¹⁶⁸

¹⁶⁶ Application, Exhibit 2, at 15-16. The first payment was made following the Execution Date of the Development Agreement.

¹⁶⁷ Development Agreement, Section 1.01.

¹⁶⁸ Development Agreement, Section 2.04.

Pursuant to HRS § 269-19,¹⁶⁹ KIUC is requesting approval, to the extent the Commission deems it is required, for KIUC to: (a) transfer the Development Assets, and (b) convey, sublet, sublicense, assign or otherwise transfer, in whole or in part, any rights that KIUC may have with respect to the WKEP under any lease, license, contract, easement, right of entry, permit, authorization and/or other agreement or document, including without limitation the Project Subleases and Subeasement(s), to AES in furtherance of AES's efforts toward the development and construction of the WKEP, under the terms set forth in the Development Agreement.¹⁷⁰

In doing so, the transfer of the Development Assets will allow AES to develop the WKEP Project, which provides various benefits as discussed above. KIUC asserts that its request is reasonable and in the public interest as there would be various cost savings/efficiencies associated with such a conveyance, sublease, sublicense or transfer compared to AES moving forward on its own without being able to use and take advantage of various efforts KIUC has already undertaken towards the Project.¹⁷¹ KIUC explains that it "ultimately decided that it would be in the best interests of itself and its members/customers for the Project to be developed by a third party and not by KIUC or

¹⁶⁹ HRS § 269-19(a) states the following:

Except as provided in subsection (b), no public utility shall sell, lease, assign, mortgage, or otherwise dispose of or encumber the whole or any part of its road, line, plant, system, or other property necessary or useful in the performance of its duties to the public, or any franchise or permit, or any right thereunder, nor by any means, directly or indirectly, merge or consolidate with any other public utility without first having secured from the public utilities commission an order authorizing it so to do. Every such sale, lease, assignment, mortgage, disposition, encumbrance, merger, or consolidation, made other than in accordance with the order of the commission shall be void.

¹⁷⁰ Application, at 37.

¹⁷¹ Application, at 37.

through a KIUC subsidiary, as this would (1) allow for a more efficient use of available tax incentives, (2) reduce risk to KIUC's members/customers by keeping the development costs/capital investments off of KIUC's balance sheet, and (3) remove the implementation and construction risk associated with a project of this magnitude relative to the size of KIUC's financing capabilities."¹⁷²

With respect to a more efficient use of available tax incentives, KIUC explains that for one, whereas KIUC is a tax-exempt electric cooperative, AES is a taxable, publicly traded corporation that can monetize tax incentives to directly offset federal tax payments owed. Though KIUC considered the use of a "tax equity flip" structure (as previously constructed for the KRS Two solar project), KIUC determined that such structure would be subject to potentially more implementation risk as opposed to AES developing and owning the Project, where it can also more easily monetize any tax incentives (as with AES Lawai and AES Kekaha).¹⁷³ In addition, under a tax equity structure, the value of the Federal ITC is reduced because the tax equity investor makes a compounded annual return on the invested capital over and above the tax incentives.¹⁷⁴

With respect to reducing risk to KIUC's members/customers by keeping the development costs/capital investments off of KIUC's balance sheet, KIUC states that its risk mitigation strategy accounts for technology risk, financial risk, implementation risk, and risk from reliance on a single project. KIUC has limited the use of its own balance sheet for proven technologies with lower risk; though each of the Project's components

¹⁷² Application, at 33.

¹⁷³ See response to CA/KIUC-IR-26a; CA/KIUC-IR-26e; and CA/KIUC-IR-40.

¹⁷⁴ Response to CA/KIUC-IR-26a.

are proven technologies, integrating them into a single, large integrated generation resource (i.e. shaft risk due the size of any single resource), resulted in KIUC's determination that there is reduced risk by having a third-party develop the Project.¹⁷⁵ In addition, as the Project was estimated to surpass \$175 million, thereby increasing KIUC's Net Utility Plant by over 50% and representing over 120% of KIUC's consolidated equity capital balance, and increasing long-term debt by over 50%, KIUC determined this to be counter to its risk mitigation strategy.¹⁷⁶

Lastly, with respect to removing the implementation and construction risk associated with a project of this magnitude relative to the size of KIUC's financing capabilities, KIUC explains that the WKEP involves a higher degree of civil engineering, hydropower equipment and construction activity, compared to what KIUC has previously overseen and has direct experience with in its KRS One and KRS Two self-build projects. As such, and given AES's experience in large-scale hydropower projects, AES is better positioned to oversee these engineering and construction activities.¹⁷⁷ Moreover, given the risk of cost overruns, construction financing needs, and the potential that an unforeseen event could terminate or delay construction prior to successful operations of the Project, KIUC determined that managing Engineering, Procurement, and Construction ("EPC") contracts for implementation and construction activities required access to a larger balance sheet. In summary, KIUC states the subject arrangement with AES eliminates KIUC's implementation and construction risk associated with a project of

¹⁷⁵ Response to CA/KIUC-IR-26b.

¹⁷⁶ Responses to CA/KIUC-IR-26b and CA/KIUC-IR-40.

¹⁷⁷ Response to CA/KIUC-IR-26c; Response to CA-KIUC-IR-40.

this magnitude and complexity, which is also beneficial in light of the size of KIUC's financing capabilities and construction management experience.¹⁷⁸

In consideration of the conveyance, assignment, and transfer of the Development Assets to AES, AES will be paying KIUC in five installments under Section 2.02 of the Development Agreement. In this instance, the Consumer Advocate does not object to allowing the transfer of development assets and convey, sublet, sublicense, assign, or otherwise transfer any rights under any lease, license, contract, easement, right of entry, permit, authorization and/or other agreement or document to effectuate the PPA arrangement between KIUC and AES. That being said, the Consumer Advocate requests that KIUC file copies of the documentation associated with the Development Assets with the Commission and Consumer Advocate at the time the Company provides the documents to AES.

¹⁷⁸ Response to CA/KIUC-IR-26c.

III. RECOMMENDATION.

Based upon the above, the Consumer Advocate recommends that the Commission approve KIUC's requested relief with the conditions discussed in Section II. above. That being said, the Consumer Advocate recognizes that the Participants in this proceeding will also be filing statements of positions today that may raise other issues, as well as other issues that may be received in the other on-going proceedings related to the development of the WKEP project. Thus, the Consumer Advocate recommends that KIUC address such issues, in its reply statement of position.

DATED: Honolulu, Hawaii, July 2, 2021.

Respectfully submitted,

By /s/ Dean Nishina
DEAN NISHINA
Executive Director

DIVISION OF CONSUMER ADVOCACY

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing **DIVISION OF CONSUMER ADVOCACY'S STATEMENT OF POSITION** was duly served upon the following parties electronically to the e-mail addresses below pursuant to HAR § 16-601-21(d), as modified by Order No. 37043 Setting Forth Public Utilities Commission Emergency Filing And Service Procedures Related To COVID-19, issued on March 13, 2020.

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DATED: Honolulu, Hawaii, July 2, 2021.

/s/ T. Enos-Godinez_____

EXHIBIT B

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing **DIVISION OF CONSUMER ADVOCACY'S MOTION TO SEAL MOTION TO SEAL THE DIVISION OF CONSUMER ADVOCACY'S STATEMENT OF POSITION, FILED JULY 2, 2021** were duly served upon the following parties electronically to the e-mail addresses below pursuant to HAR § 16-601-21(d), as modified by Order No. 37043 Setting Forth Public Utilities Commission Emergency Filing And Service Procedures Related To COVID-19, issued on March 13, 2020.

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DATED: Honolulu, Hawaii, July 6, 2021.

/s/ T. Enos-Godinez

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